National Heart Attack Alert Program
Coordinating Committee

MEETING SUMMARY REPORTS

October 25–26, 2004
Neuroscience Conference Center
Rockville, Maryland

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NATIONAL HEART, LUNG, AND BLOOD INSTITUTE
NATIONAL HEART ATTACK ALERT PROGRAM
COORDINATING COMMITTEE

October 25–26, 2004
Rockville, Maryland

HIGHLIGHTS

Business Meeting:

- Dr. Barbara Alving, Acting Director, National Heart, Lung, and Blood Institute (NHLBI), welcomed the participants. She introduced a suggestion to combine educational efforts and messages about heart attack and stroke. A working group will be formed to consider this proposal.

- Ms. Mary Hand, National Heart Attack Alert Program (NHAAP) Coordinator, introduced three new Coordinating Committee members: Dr. Barbara Hatcher, representing the American Public Health Association; Dr. Robert Jesse, representing the Department of Veterans Affairs; and Ms. Karen Halupke, replacing Mr. Jimm Murray as the representative of the National Association of State Emergency Medical Services Directors (NASEMSD).

- Dr. James Atkins, Chair of the Executive Committee, provided a report from the Executive Committee meeting held earlier in the morning. The key decisions made were:

  – The next NHAAP Coordinating Committee meeting will be held June 6–7, 2005, in the Washington, DC metropolitan area, location to be determined.

  – The Executive Committee approved the Heart Rhythm Society's application for membership on the NHAAP Coordinating Committee. A representative will be appointed in advance of the next meeting.

  – The Executive Committee agreed that the Survivor Care Working Group paper, "Compassionate Care and Illness Prevention for Surviving Family Members of Victims of Unexpected Cardiac Death in the Community, Emergency Department, and Hospital," should be considered a NHAAP paper and reviewed by the participating members and their organizations.

- Dr. Bruce MacLeod, Chair of the Health Systems Subcommittee and representative of the National Association of EMS Physicians, led a discussion of the draft program paper entitled "Prehospital 12-Lead Electrocardiography—A Call for Implementation in Emergency Medical Services Systems Providing Advanced Life Support." Representatives from several organizations had secured approval of the paper from their organizations prior to the meeting. A new deadline of December 31, 2004 was given to committee members for final review and comment/approval by their

organizations. Written approval (letter or e-mail) by the organization or by the representative on behalf of the organization should be sent to Ms. Hand.

- Dr. Robert Giffin, Senior Program Officer, Institute of Medicine (IOM), provided an overview of the IOM project on the future of emergency care in the U.S. health system.

- Mr. Drew Dawson, representative of the National Highway Traffic Safety Administration (NHTSA), provided updates on several ongoing projects of the NHTSA: the National EMS Scope of Practice Model, the National EMS Information System, and wireless enhanced 9–1–1.

- Dr. Robert Christenson, representative of the American Association for Clinical Chemistry, Inc., described the Beckman Conference on Biomarkers and thanked the committee members for their organizations' assistance with reviewing the draft laboratory-based guidelines and for participating in the conference.

Special Focus: Use of EMS by Patients With Acute Coronary Syndromes (ACS):

- Dr. MacLeod and Ms. Mary Beth Michos, Vice Chair of the Health Systems Subcommittee, introduced the special focus portion of the meeting—"Use of EMS by Patients with ACS: How Can We Do Better?"

- Dr. Atkins described the state of the field for using EMS for ACS, including benefits and rates of EMS, and interventions to increase EMS use.

- Dr. Joseph Ornato, Chair of the Science Base Subcommittee, described the ideal recognition and response scenario for patients with ACS. He also described patient, prehospital, and emergency department issues related to reducing treatment delay based on the "American College of Cardiology/American Heart Association Guidelines for the Management of Patients With ST-Elevation Myocardial Infarction." He proposed, for the committee's consideration, future alternative modes of response that might encourage earlier patient access as opposed to the traditional lights and siren approach.

- Dr. Robert Bass, Executive Director for the Maryland Institute for EMS Systems and current President of NASEMSD, described current EMS response, scope of practice levels, variations in EMS response, and the potential benefits of basic and advanced life support interventions for ACS.

- Ms. Sharon Henry, a heart attack survivor and a spokesperson for WomenHeart, the National Coalition for Women with Heart Disease, and Mr. Robert Schriever, Vice President of the University of Pittsburgh-based National Center for Early Defibrillation Sudden Cardiac Arrest Survivor Network, provided the patient perspective by describing their symptoms leading up to their heart attack event.

- Dr. Angelo Alonzo, NHAAP Advisor, discussed the social psychology of the patient/situation, including factors that facilitate and inhibit EMS use; and how demographics, resources, and perceptions interact with socially defined situations.

- Ms. Terry Long, Senior Manager, Health Communications and Information Science, Office of Prevention, Education, and Control (OPEC), NHLBI, presented an overview of the *Act in Time to Heart Attack Signs* program and materials.

- Two breakout groups met to brainstorm strategies for increasing the percentage of patients with ACS being transported by EMS. They considered both patient and systems issues and then reported their recommended strategies to the large group.

- A second set of breakout sessions was held the next day to prioritize the strategies and recommend actions to achieve them. After reports from the breakout groups, Dr. MacLeod and Ms. Hand discussed next steps.

- Mr. Schriever provided an update on activities of the National Center for Early Defibrillation Sudden Cardiac Arrest Survivor Network and showed a video that featured the survivors.

- Ms. Hand thanked the participants and adjourned the meeting and reminded the group that the next meeting will be held June 6–7, 2005.

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NATIONAL HEART, LUNG, AND BLOOD INSTITUTE
NATIONAL HEART ATTACK ALERT PROGRAM
COORDINATING COMMITTEE BUSINESS MEETING

Meeting Summary
October 25–26, 2004

WELCOME (Dr. Barbara Alving)

Dr. Alving, Acting Director of the National Heart, Lung, and Blood Institute (NHLBI), welcomed the Coordinating Committee members. She noted that an announcement to name the new Director of the NHLBI is imminent.

Dr. Alving asked the committee to consider her suggestion that the National Heart Attack Alert Program (NHAAP) be combined with brain attack educational efforts. By so doing, one message could educate the public about what to do if they have symptoms of heart attack or stroke. This would involve working with the National Institute of Neurological Disorders and Stroke (NINDS).

Committee members said that this is an interesting idea because of the many parallels between heart attack and stroke, including the need for coordination of care in the emergency department (ED), hospital, and community. Heart attack and stroke share the same risk factors, are similar in terms of technologies and therapies, and both require rapid response and getting patients to centers that provide advanced care. There is a question as to whether a separate focus on heart attack is preferable or whether there would be a strategic benefit from having one program address both conditions. Dr. Robert Jesse noted that the Veterans Administration is giving one message about heart attack and stroke—telling people to plan ahead and to understand what they should do if they have symptoms. Dr. Harry Selker cautioned that we do not want to lose an emphasis on heart attack.

Dr. Alving suggested that a working group be established to consider the proposal. The following persons volunteered to serve on this group: Drs. Joseph Ornato, Robert Jesse, Lawrence Jones, Bruce MacLeod, Stephen Cantrill, Allan Braslow, Angelo Alonzo, M. Ray Holt, and Ms. Carol Cunningham Base, with Dr. James Atkins as lead. The topic could be considered before, and at, the next Coordinating Committee meeting.

INTRODUCTION (Ms. Mary Hand)

Ms. Hand introduced three new Coordinating Committee members: Dr. Barbara Hatcher, representing the American Public Health Association; Dr. Jesse, representing the Department of Veterans Affairs; and Ms. Karen Halupke, replacing Mr. Jimm Murray as the representative for the National Association of State Emergency Medical Services Directors (NASEMSD).
Ms. Hand also reviewed the agenda of the 1½-day meeting, including the business meeting and the special focus portion of the meeting on emergency medical services (EMS) utilization.

EXECUTIVE COMMITTEE REPORT (Dr. Atkins)

Dr. Atkins reported that the Executive Committee agreed upon June 6–7, 2005, as the tentative date for the next Coordinating Committee meeting. The committee also approved the addition of a new organization, the Heart Rhythm Society, which was previously the North American Society of Pacing and Electrophysiology. He also reported that the Survival Care Working Group will be an official NHAAP working group, which has already developed a paper highlighting two key areas related to survivors of cardiac arrest victims: compassionate disclosure and morbidity and mortality of survivors. The Executive Committee also discussed the establishment of a Best Practices Working Group.

DISCUSSION OF PROGRAM PAPER (Ms. Hand and Dr. MacLeod)

Ms. Hand introduced Dr. MacLeod (Chair, Health Systems Subcommittee) to lead the discussion of the draft paper entitled "Prehospital 12-Lead Electrocardiography—A Call for Implementation in Emergency Medical Services Systems Providing Advanced Life Support." This paper, which cites evidence that use of the prehospital 12-lead electrocardiogram (ECG) improves outcomes for patients in the community with acute coronary syndromes (ACS) symptoms, was prepared by the Health Systems Subcommittee with Dr. J. Lee Garvey (representing the Society of Chest Pain Centers) and Dr. MacLeod (representing the National Association of EMS Physicians [NAEMSP]) as lead writers. The paper was sent to member organizations (in early September) for their approval; some have sent their comments and approval, but further input from all organizations is needed before a vote can be taken.

Committee members mentioned the following comments from their organizations:

- Dr. Cantrill said that the American College of Emergency Physicians (ACEP) gave qualified approval but expressed some concern about use of the term "destination hospitals," and the reference in the paper regarding the use of prehospital thrombolytics. ACEP supports the use of prehospital 12-lead ECG by advanced cardiac care life support providers, based on a cost–benefit analysis by each individual provider group as per the EMS agenda for the future.

- Ms. Pat Bonifer-Tiedt said that the American Red Cross Advisory Council on First Aid and Safety reviewed and approved the paper. Mr. Jim Judge, a member of that advisory council, said that this body supports the benefit of a prehospital 12-lead ECG for ACS patients.

- Dr. Jones said that the American Academy of Insurance Medicine gave an enthusiastic endorsement of the 12-lead ECG but expressed caution against making definitive statements.

- Dr. Gerald DeVaughn said that the Association of Black Cardiologists has commented that the paper does not mention the cost of ambulance transport, which is a reason that some people do not call 9–1–1.

- Dr. Emmett Ferguson said that the executive committee of the American College of Occupational and Environmental Medicine (ACOEM) reviewed the paper and sent a letter supporting the 12-lead ECG technology and recognizing the responsibility of ACOEM to promote technologies that enhance the survival of American workers.

- Mr. Drew Dawson said that the National Highway Traffic Safety Administration (NHTSA) will submit additional comments on the need for educating/training prehospital providers. He noted that the cost of training and equipment influences the decision of prehospital EMS to use the technology.

- Ms. Julie Bracken said that the Emergency Nurses Association has approved and supports the paper.

- Ms. Cunningham Base reported that the American Association of Occupational Health Nurses, Inc. (AAOHN) suggested using recommendations from the American College of Cardiology (ACC) and the American Heart Association (AHA) to educate the public more aggressively about the need to call EMS. AAOHN also recommended providing all prehospital care providers with established protocols/checklists that are approved by emergency physicians, cardiologists, or local physician consultants; findings obtained from using these protocols/checklists would be transmitted to licensed health care professionals at the ED. When such transmission is not appropriate, treatment should not be initiated based on an ECG that has not been read by a physician. AAOHN also suggested updating EMS response capabilities in rural settings.

Dr. MacLeod asked members to send their comments to Ms. Hand in writing or by e-mail by December 31, 2004. The comments will be considered by the writers and incorporated if they do not change the tone or direction of the paper. More substantive comments will be reviewed by an independent external group, to be designated by NHLBI. The revised draft will be sent to the Coordinating Committee for approval in early 2005.

INSTITUTE OF MEDICINE (IOM) PROJECT: THE FUTURE OF EMERGENCY CARE IN THE UNITED STATES HEALTH SYSTEM (Dr. Robert Giffin)

Dr. Giffin, Senior Program Officer, IOM, provided an overview of The Future of Emergency Care in the United States Health System, the latest of a series of studies by the IOM related to emergency care and quality improvement (QI) initiatives. (Please refer to attachment C for slides.) The project, which began in February 2004, is supported by the Josiah Macy, Jr. Foundation, the Agency for Healthcare Research and Quality (AHRQ), the Health Resources and Services Administration (HRSA), NHTSA, and the Centers for Disease Control and Prevention (CDC). The project's objectives are to look at EMS in the United States; explore its strengths, limitations, and future challenges; describe a desired vision for EMS; and recommend strategies required to achieve that vision. The project will focus on prehospital EMS and the unique challenges associated with EMS services for children and adolescents.

Forty-one persons (including Coordinating Committee member Ms. Mary Beth Michos and Dr. Robert Bass who were present at this meeting) are serving on four project committees—

a main committee and three subcommittees on prehospital EMS, pediatrics, and hospital-based emergency care. The next meeting will be held in Los Angeles in March 2005, to obtain input in a public forum. Subcommittee meetings will then be held from May to October 2005. Each committee will produce its own report and the four reports will be released by April 2006.

Information is being gathered from commissioned papers on 10 topics, survey research, expert testimony, a literature review and data synthesis, site visits, professional societies, and sponsor/Government resources. Dr. Giffin asked Coordinating Committee members to send him their comments, and he said they could sign up on a Listserv for e-mail updates at www.iom.edu/emergencycare.

BRIEF UPDATES FROM ORGANIZATIONS

National Highway Traffic Safety Administration (Mr. Dawson)

Mr. Dawson noted that Federal EMS programs are coordinated by NHTSA and its Federal partners, which include the CDC, HRSA, the U.S. Fire Administration, and others. (Please refer to slides in attachment D.) NHTSA has been a leader in developing curricula for prehospital EMS providers at all levels. Several years ago it began developing an "EMS Education Agenda for the Future: A Systems Approach." This effort recognized that EMS education includes national EMS core content developed by physicians, the national Scope of Practice Model that is determined by State EMS directors and training coordinators in conjunction with the national community, national EMS education standards, and EMS program accreditation and national certification.

Mr. Dawson provided updates on three ongoing NHTSA projects:

The National EMS Scope of Practice Model. This model describes the legally authorized range of skills that a health care professional can perform. The scope of practice is determined by State law and administrative rules, but it does not automatically authorize every provider to perform every skill. The project's goal is to determine the levels of EMS providers, their minimum entry-level requirements, and the outside limits of what they may do. The draft report includes the following name changes for the levels of EMS providers: emergency medical responder, emergency medical technician (EMT), paramedic, and advanced practice paramedic. The report addresses national levels of EMS certification and credentialing for the future. The first draft is available for public review and comment through January 30, 2005, and it can be downloaded from http://www.emsscopeofpractice.org. Few comments have been received to date. All input will be considered and will help shape the final product. A national review team will finalize the document in 2005.

National EMS Information System (NEMSIS). NHTSA and its Federal partners, including CDC's Emergency Medical Services for Children program, are developing NEMSIS under a contract with NASEMSD. Data elements, a dictionary, and an extensive markup language format have been defined, including standards for data collection at the local level and subsets of data that will go to the State and national levels. There is a Memorandum of Understanding from 48 States and territories that they will use this dataset. The partners are

considering future funding and governance for the project. The document and data can be downloaded from http://www.nemsis.org.

Wireless Enhanced 9–1–1 and Next Generation 9–1–1. NHTSA is working with the Federal Communications Commission (FCC) on a project to provide telephone numbers and geographic locations for calls from cell phones. While landline phones provide this information, as many as 50 percent of calls to public safety answering points come from cell phones. Secretary of Transportation, Mr. Norman Mineta, is actively involved in efforts to get funding for the project. In addition, a $12 million project with the FCC is being conducted to define standards for Next Generation 9–1–1, which will look at information technology solutions for communicating with the public safety answering points—e.g., via personal medical devices and personal digital assistants.

American Association for Clinical Chemistry, Inc. (Dr. Rob Christenson)

Dr. Christenson noted that the American Association for Clinical Chemistry's National Academy for Clinical Biochemistry, which develops laboratory-based guidelines, held the Beckman Conference on Biomarkers in Boston in May 2004. The conference brought stakeholders together to discuss biomarkers of ACS and heart failure, and it resulted in 200 pages of comments. Draft guidelines resulting from the conference are online (http://www.nacb.org/lmpg/card_biomarkers_lmpg_draft.stm); the next iteration will be online before January 1, 2005, and the final document will be completed in summer 2005.

Special Focus NHAAP Coordinating Committee Meeting
Use of Emergency Medical Services by Patients With Acute Coronary Syndromes: How Can We Do Better?

INTRODUCTION (Ms. Hand)

Ms. Hand introduced the special focus portion of the Coordinating Committee meeting, and she thanked Dr. MacLeod and Ms. Michos (Chair and Vice Chair of the Health Systems Subcommittee, respectively) for their work planning it. She also thanked the facilitators, Drs. Alonzo and Braslow (who were assisted by Ms. Kay Ackerman and Ms. Dottie St. John, respectively), for their role in the special focus meeting.

REVIEW OF MEETING AGENDA AND PROCESS (Dr. MacLeod and Ms. Michos)

Dr. MacLeod explained that the special focus came about after the Rapid Early Action for Coronary Treatment (REACT) study found that only 50 percent of patients with acute myocardial infarction (AMI) were transported to the hospital by EMS, though most EMS providers thought the percentage was about 90 percent. (Please refer to the slides in attachment E.) The following questions were raised: Why are people using or not using EMS? Is there appropriate use of health care resources? Why did some members of the NHAAP Coordinating Committee report that even they did not call EMS when they experienced ACS symptoms (when they are knowledgeable about these issues)?

The NHAAP Coordinating Committee is holding this special focus meeting to help its member organizations and other stakeholders problem-solve around issues related to underuse and optimal use of EMS for patients with ACS symptoms, and to recommend new approaches, strategies, and associated action plans. The meeting is being held within the context of the following Healthy People 2010 objective: to increase the proportion of adults aged 20 years and older who are aware of the early warning symptoms and signs of a heart attack and the importance of accessing rapid emergency care by calling 9–1–1.

The meeting has the following goals:

1. Based on the current science, review what we know about barriers and facilitators to EMS use for patients with ACS symptoms.

2. Educate attendees about the benefits of 9–1–1/EMS use for people in their communities with ACS symptoms, within the context of an optimal recognition and response scenario.

3. Develop patient- and system-related strategies for increasing the percent of patients with ACS being transported by EMS.

4. Establish an action plan to achieve the recommended strategies for increasing the percent of patients with ACS being transported by EMS.

5. Gain consensus for monitoring implementation and evaluation of the action plan.

Ms. Michos then described the process and agenda for the meeting. The first session focuses on where we are now—the state of the field. In the afternoon, two breakout groups will develop strategies for how to increase the percentage of patients with ACS being transported by EMS. These strategies will focus on both patient and system aspects. Dr. Alonzo will facilitate group A, assisted by Ms. Ackerman; Dr. Braslow will facilitate group B, assisted by Ms. St. John. Afterward, the large group will reconvene to hear reports from the breakout groups. On day 2, the breakout groups will meet again to develop action plan items for the strategies. This will include identifying who will be involved, when the actions will be implemented, and how to measure success related to the strategies. The breakout groups will then report to the Coordinating Committee in the final session.

USING EMS FOR (PATIENTS WITH) ACS: STATE OF THE FIELD (Dr. Atkins)

Review of Current Science: Background Paper Highlights

Dr. Atkins provided an overview of the science supporting EMS use by patients with ACS. (A draft background paper titled "Use of Emergency Medical Services by Patients With Acute Coronary Syndrome Symptoms: Summary of the Evidence and Future Directions" was in the meeting packet.) He noted that 1.1 million Americans have an AMI each year resulting in 515,000 deaths, half of which occur in the community. ACS includes ST-elevation myocardial infarction (STEMI) as well as non-STEMI and unstable angina.

Reperfusion or artery-opening therapy revolutionized MI patient care and created a new paradigm of interrupting the acute event to minimize muscle damage. "Time is muscle" means that the quicker the patient is treated, the lower the mortality rate and the less muscle damage. Dr. Atkins presented data from a number of studies showing that the time to treatment is critical—as important as the treatment itself. (Please see attachment F for slides; all studies not mentioned here.) Given the continued importance of time to treatment for AMI, we need to continue to address delays associated with patients/bystanders, health care providers, transport, and hospitals.

Benefits of EMS use for ACS patients. Dr. Atkins noted that 1 of 12 patients arriving by EMS with chest pain has AMI, and that another 1 in 12 has another form of ACS. Because EMS speeds time to treatment, the current NHAAP message is to call 9–1–1 if a person experiences ACS symptoms for a few minutes, but no more than 5 minutes. Dr. Atkins cited five studies that found a significant association between arrival at the ED by ambulance and earlier reperfusion therapy, compared with patients who used other modes of transport. For example, Lambrew et al. (1997) found that it took two times longer for patients not arriving by ambulance to be seen by a physician in the ED. Another study (Hedges et al., 1998) reported that MI patients transported by EMS had higher rates of reperfusion within 6 hours than patients arriving by other modes of transportation (36 vs. 24 percent, respectively). Other benefits of EMS use for ACS patients include the fact that EMS dispatchers can provide prearrival instructions and EMS providers can start treatment (e.g., with oxygen, aspirin, cardiopulmonary resuscitation [CPR], or defibrillation). Additional benefits of EMS transport are the possibility of getting a prehospital ECG and the direct triage of patients who need emergency angioplasty (where prehospital protocols exist). Furthermore, patients who drive themselves to the hospital are at risk for motor vehicle accidents and they can experience cardiac arrest while being driven by a family member.

Rates of EMS use by ACS patients. Rates of EMS use by patients with chest pain symptoms were 10–59 percent in 1989–2000; there were regional variations, with the Pacific Northwest having the highest rate of use (50–60 percent). REACT telephone survey data indicate that 89 percent of community members would call 9–1–1 if they witnessed a cardiac event. However, a survey of REACT patients who presented to a hospital with chest pain showed that 23 percent used EMS, 60 percent were driven by someone else, and 16 percent drove themselves to the ED (Brown et al., 2000).

Factors associated with EMS use by patients with ACS. Dr. Atkins provided data about the following factors associated with EMS use:

- **Demographic factors** include older age, living alone, white ethnicity, education, and being in the presence of others. However, there are variations by region; for example, in Dallas, African Americans use EMS for ACS more than any other ethnicity.

- **Past medical history** includes previous MI, congestive heart failure, or angina; hypertension; diabetes; greater incidence of AMI; and increased severity of ACS symptoms. REACT found greater EMS use in patients with chronic or other cardiac diagnoses, retirees, and those with systolic blood pressure <160 mmHg. But another study (Picken et al., 1998) found that patients with angina, nonischemic cardiac disease, and noncardiac disease had lower rates of use—so again, there are marked variations.

- **Physician factors** include that many providers prefer that their patients call them before calling 9–1–1, perhaps because the EMS may not take the patient to their hospital of choice. In one study, 83 percent of patients who spoke with a physician and did not use EMS transport were later admitted to the hospital (Brown et al., 2000).

- **Economic factors (insurance)**—the National Registry of Myocardial Infarction 2 found that patients with health maintenance organization (HMO) insurance, the uninsured, and Medicaid patients were more likely to use EMS than those with commercial insurance. Another study (Soumerai et al., 1999) found that elderly HMO patients were more likely to use EMS than elderly fee-for-service patients. REACT focus groups reported that cost generally was not a barrier to calling EMS. Dr. Atkins noted that EMS is a city service in some areas, however, and costs and reimbursement vary widely by locality, even for Medicare. In King County, Washington, where EMS is free, 60 percent of MI patients call 9–1–1 for ACS symptoms. One study (Siepmann et al., 2000) found that prepayment was not associated with increased EMS use in the overall sample, but low-income patients were 2.6 times more likely to use EMS when prepayment was available. Health insurance plans also varied in their definition of chest pain as an emergency and their instructions to plan members for calling 9–1–1 or going to the ED; 27 percent provided no options for calling 9–1–1 or seeking ED care, and 20 percent cited higher costs for ED care (Neely and Norton, 1999).

Interventions to increase EMS use for patients with ACS symptoms. Interventions to date have been modestly successful and most have focused on reducing prehospital delay time. In general, it has been more difficult to reduce delay time than to increase EMS use. Three randomized trials in the last decade have shown increased 9–1–1 use for ACS:

- **Call Fast. Call 9–1–1 Campaign—**a communitywide intervention in King County, Washington that included a 6-week mass media campaign followed by a year-long direct mail campaign. While the intervention resulted in no change in delay time, the media campaign resulted in an increased number of 9–1–1 calls for chest pain, and the direct mail campaign showed a specific effect for subgroups. For example, patients with a history of AMI had an 18 percent greater rate of EMS use in the intervention vs. control group. There also was increased use of EMS among patients who received emotional and social messages throughout the intervention.

- **REACT—**a trial in 20 communities (10 intervention and 10 control) that included an 18-month intervention inclusive of public education, community organization, and patient and provider education. There was no significant decrease in delay time, but a 20 percent difference in EMS use was found between intervention and control groups. In the intervention group, EMS use was 20 percent greater among patients who were admitted to and discharged from the ED with cardiac-related diagnoses compared to the control group.

- **A Heart Attack Survival Kit—**a community-based trial of 24,000 seniors in King County, Washington who were randomized to receive either an in-person visit from a firefighter to discuss how to respond to heart attack symptoms or a kit of educational materials left on their doorknob. Another 24,000 seniors served as the control group. After 1 year, the intervention group called EMS significantly more often than the control group. Although the effect for the second year was not statistically significant, the trend was in the right direction. Results for the 2 years combined found a statistically significant effect in the intervention group.

Dr. Atkins closed by saying that EMS systems vary, but there is not a good understanding in the literature about the influence of these differences on ACS treatment.

IDEAL RECOGNITION AND RESPONSE SCENARIO (Dr. Ornato)

Dr. Ornato described how our current EMS systems are not optimally configured to support the needs of chest paint patients based on what we know at present. (See attachment G for slides.) Currently, there are more than 100 million ED visits per year in the United States, including more than 6 million for chest pain. Of these, 50–60 percent of the patients are admitted to the hospital, and a fair number of these are found not to have ACS (15 percent have AMI and 15 percent have unstable angina), generating a fairly high cost to society. Among patients who are not admitted, however, 1–5 percent have a "missed" AMI (with 16 percent mortality).

Dr. Ornato then suggested a potential paradigm shift for shortening the time to treatment in chest pain patients, especially those with ACS. Progress has been made in shortening the time

to fibrinolysis or percutaneous cardiac intervention (PCI) therapy, but it is not short enough to have maximum impact on survival.

NHAAP has identified three phases of delay in treating AMI: patient/bystander recognition, prehospital actions, and ED-associated actions. The largest delay is in the hands of the patient, and NHLBI has led the effort to address this delay with the REACT research program, which had a modest impact on increasing EMS use. In most communities, only about one-quarter to one-third of STEMI patients utilize EMS. "The American College of Cardiology/American Heart Association 2004 Guidelines for the Management of Patients with ST-Elevation Myocardial Infarction" recommends that patients take one nitroglycerin tablet instead of three tablets before calling 9–1–1, and also presents optimal timeframes for STEMI treatment, though these are mostly unattainable at the present time. A key issue is when the time clock should start—at the moment of definitive diagnosis. Placing 12-lead ECGs on advanced life support (ALS) units will allow the clock to start in the field. For example, in communities that use prehospital fibrinolytic therapy, a goal of 30 minutes to therapy could achieve the optimal timeframe. Another paradigm is to relay the results of ECG-diagnosed STEMI to hospitals that can provide angioplasty, or to facilitate direct transport from the ED to the catheterization laboratory.

Public education is vital to reduce delay to definitive treatment for patients with STEMI, but it alone is not the solution. Dr. Ornato asked committee members to consider what they would do if they experienced indigestion extending to the center of their chest and a cold sweat while staying in a hotel room during an out-of-town conference. Options were to call their doctor or spouse, take antacids, or call 9–1–1. Self-treatment is associated with delay and is one reason the NHAAP has not supported a general recommendation that the public take aspirin. Calling 9–1–1 is a huge decision that can mean loss of control, embarrassment, inconvenience, and a trip to the ED that involves cost. The decision depends on the individual, the community (EMS services vary widely), and the circumstances. A REACT telephone survey indicated that factors undermining use of EMS include indecision, antacid/aspirin self-treatment, physician contact, and financial concerns. In communities where there is a fee for EMS, this is a disincentive to use EMS. A possible solution is the ability to call 9–1–1 without loss of control, embarrassment, inconvenience, and unnecessary expense.

Chest pain patients represent only 6 percent of ED visits and EMS runs; of these, 85 percent have no MI. A possible solution is to have EMS provide a consultative service, with paramedics responding in less than 10 minutes with no lights and sirens, rather than the current response, which Dr. Ornato equated to "sending the Marines." Prehospital telemedicine can provide advanced diagnostics on the scene—including ECG, body mapping, and point-of-care cardiac markers—to provide risk stratification and setup for future evaluative tests within 12 hours (e.g., cardiac markers, nuclear cardiac scans, and echo stress tests). Patients who are risk stratified to a low level could be outfitted with a wearable automated external defibrillator (AED) with a global positioning system for followup. Another option is for physicians to see the patient on a handheld device. Real-time video on G3 cell phones is another promising technology. Dr. Ornato noted that he would prefer not to use solutions that only some people can access (e.g., the Internet).

In summary, Dr. Ornato said that our current EMS systems are not configured to best support the needs of chest pain patients. For acute, life-threatening diseases such as STEMI and stroke, we need to think of other alternatives such as taking advantage of the existing technology with the potential to provide a rapid, consultative EMS community service, shorten time to treatment in MI patients, and lower cost.

CURRENT EMS RESPONSE: CONFIGURATIONS AND CAPABILITIES
(Dr. Robert Bass)

Dr. Bass, Executive Director for the Maryland Institute for EMS Systems and current President of NASEMSD, described what people can expect from EMS when they dial 9–1–1. He noted that EMS response configurations and capabilities in the United States vary significantly in terms of levels of providers and their scope of practice, types of response vehicles, access and response times, types of services providing EMS, and medical dispatch protocols.

The NHTSA Model of scope of practice identifies four nationally defined levels of EMS practice: (1) first responders (mostly fire or law enforcement personnel); (2) EMT-Basic; (3) EMT-Intermediate; and (4) EMT-Paramedic. A 2002 survey (Mears, 2003) provided information about the four levels, which vary in the amount of required training (an average of 44, 126, 160, and 738 hours, respectively) and skill level (from minimal skills such as CPR and splinting to other skills such as immobilization, airway management, use of medications, manual defibrillation, and cardioversion). The levels also vary by State as to which medications (e.g., aspirin, nitroglycerin, fibrinolytics) and other treatment (e.g., AED, oxygen, 12-lead ECG) can be administered. Local protocols and medical oversight decide what each level can actually do. Because States and local jurisdictions ultimately determine scope of practice, there are actually many more levels of care, with the most variation in the basic and intermediate categories.

Dr. Bass noted that a tiered response means that EMS providers can come in waves. For more serious calls, a nontransporting first responder provides basic life support (BLS) with AEDs. The BLS and/or ALS ambulance follows. Systems with tiered response are more common in urban areas and are possibly more effective in managing cardiac arrests. However, the tiered response may result in multiple response vehicles on the scene—i.e., "calling the Marines." According to a 2002 HRSA survey, 91 percent of the U.S. population has access to BLS, and 77 percent has access to ALS.

BLS interventions that potentially benefit ACS patients include oxygen, nitroglycerin, aspirin, and transport by EMS. However, it is not known whether transport by BLS providers is beneficial. Transport by EMS and ALS using a prehospital 12-lead ECG reduces time to treatment above and beyond the benefit of transport by EMS. There is a reduction in short-term mortality but conflicting data on long-term benefit. ALS interventions that potentially benefit ACS (but lacking good supporting data) include advanced airway care, rhythm stabilization, analgesia, correction of hypotension, prehospital fibrinolysis, and triage of STEMI patients to intervention centers. The Maryland Institute for EMS Systems in partnership with the State's Health Care Commission will participate in a 2-year study to identify a protocol for transport of STEMI patients to intervention centers.

Access to EMS varies significantly. Response times may be slower for rural/frontier areas, dense urban areas (especially in tall buildings), special events, and volunteer systems. Fire-based service represents about 45 percent of EMS services and is more common in urban areas; hospital-based service represents 7 percent of EMS services; and municipal or volunteer third-party service (the private or public utility model) represents 48 percent of EMS services. Fifty percent of providers are volunteers. Hybrid systems, which include a fire-based service first response followed by private ambulance, are not uncommon (e.g., in Salt Lake City).

Not all EMS systems have medical dispatch protocols. If protocols are used, they may have one of four variations: (1) Medical Priority Dispatch protocols (the most common); (2) a dispatch program from the Association of Public Safety Communication Officers; (3) a national program from the Powerphone company; and (4) local protocols. The Medical Priority Dispatch option uses strictly scripted protocols and provides four general levels of response: (1) BLS and no lights/sirens; (2) BLS and lights and sirens; (3) ALS and lights and sirens; and (4) ALS plus first responders. The level of response is determined by answers to initial screening and additional questions. (Dr. Bass showed a sample card with three response alternatives for chest pain depending on the patient's age, symptoms, and medical history.) Local jurisdictions may customize response configurations for given levels or indicators. Dispatchers may give prearrival instructions and/or dispatch life support (e.g., give over-the-phone CPR instructions).

Dr. Bass noted that the many permutations in EMS response configurations—including 4 levels of care, 6 or more types of service, and use of transport or nontransport vehicles—result in a total of at least 48 variations. This contributes to the difficulty in evaluating the cost and effectiveness of EMS. NHTSA has established a task force to attempt to characterize EMS systems.

Dr. Bass said that if a patient has cardiac arrest, CPR and early defibrillation can provide proven benefit; however, only about 1 in 14 patients with chest pain ends up with cardiac arrest. In some situations, transport time to the hospital may be shorter by a privately owned vehicle (POV), but time to treatment once in the ED is generally greater. One in three hundred patients transported by POV will arrest before reaching the hospital. (Dr. Bass later agreed that this is a relatively small number; he senses that arrest is more common.)

Dr. Bass concluded that although more research is needed to determine long-term benefit, he believes that patients with chest pain will likely benefit by calling 9–1–1 for evaluation and transport. During the discussion, he said that educating the public about what they can expect when they dial 9–1–1 is usually a local effort. There has been no significant national campaign since the Make the Right Call campaign (sponsored by NHTSA in the 1990s). One participant questioned whether EMS systems can handle more calls, and another said there should be a better way to get patients to the ED fast. One suggestion was to use a checklist to rank chest pain and identify patients with a higher likelihood of cardiac arrest.

CALLING EMS FOR ACS SYMPTOMS: PATIENT PERSPECTIVES

Patient Testimonies

Two guest speakers shared their experiences of having heart attacks and the symptoms they experienced leading up to it.

Ms. Sharon Henry

Ms. Henry, a registered dietitian who is a community educator for Potomac Hospital in Prince William County, Virginia, and a wellness consultant for the Prince William County Health Authority, described her experience of having an AMI 2 years ago. She said that she was at home feeling unwell for 3 days when a friend asked her why she wasn't going to the gym. She said she didn't feel right—e.g., she couldn't walk up a flight of stairs. Her symptoms were tiredness, restlessness, and dull pain in her back—not the "Hollywood heart attack" symptoms that people expect. She thought these symptoms were due to stress, though she admitted she should have known better because she worked in a cardiac rehabilitation program. Her friend insisted that she go to the ED and took her there. On the way to the hospital, the side of her face went numb. At the hospital, she reported no chest pain but tests indicated that 50 percent of her heart was not functioning and her injection fraction was 28 percent (the normal range is 55–60 percent). Within minutes, she was in intensive care. Five days later she was released from the hospital with a diagnosis of AMI.

Ms. Henry said that not enough women recognize the symptoms of AMI or know when to call 9–1–1. She serves as a spokesperson for WomenHeart, a national coalition of women with heart disease. She referred the committee to copies of WomenHeart's "Stories from the Heart," which had been distributed with their meeting materials. The book, in which women heart patients and their families describe their disease, treatment, and recovery was provided by Ms. Nancy Loving, Executive Director of WomenHeart. Ms. Henry encouraged the meeting participants to share the book with women they know—it could save their lives. She noted that providers can get copies of the book from WomenHeart (www.womenheart.org).

Mr. Robert Schriever

Mr. Schriever, Vice President of the University of Pittsburgh's National Center for Early Defibrillation Sudden Cardiac Arrest Survivor Network, is a businessman and college football official who officiates at high school football games. He was serving as a referee at one of these games when he had a sudden cardiac arrest. A news clip about his experience of being saved by defibrillation was played for the group to view.

Arriving at the game, he was told that someone had gone to pick up a new piece of equipment—an AED. Massachusetts requires that a trainer and an EMT be present at all high school football games. After half time, Mr. Schriever remembers little; he fell down suddenly and he does not recall having pain or other symptoms. He was "dead" for 2.5 minutes before the AED was used to revive him. Six hours later, he woke up at the hospital, and he later had angioplasty for severe blockage.

Mr. Schriever said that he was under severe stress during the days leading up to the event. He had some sensations in his chest and pains in his right arm and face, but he ignored them or denied they were important. The night before, he experienced sweating, pain in his jaw, dizziness, nausea, and diarrhea—but no chest pain. His wife suggested going to the hospital, but he did nothing because he wanted his grandson to go to the game with him the next day. Mr. Schriever challenged the Coordinating Committee to get the word out about the need to recognize symptoms and call EMS—not to wait.

Social Psychology of the Patient/Situation (Dr. Alonzo)

Dr. Alonzo discussed how patients who *know* they need care make a decision of *how* to get it. (Refer to slides in attachment H.) Options are to call a physician, drive or be driven to the ED, dial 9–1–1, or use other ways of getting there such as taking a taxi, walking, going to a fire station, or calling a nonmunicipal ambulance. Dr. Alonzo then discussed factors that facilitate or inhibit the use of EMS—a combination of demographics, resources, perceptions, and interactions with social situations.

Factors facilitating EMS use. Demographic factors that facilitate EMS use include increasing age; living alone (more likely to be female); and being older than 65 years of age, female, retired, or low income or poverty level. Resource-related factors that facilitate EMS use include lack of alternative transport; and being an HMO subscriber, in a prepayment system in a low-income area, uninsured, or a Medicaid recipient. Other factors include having high symptom acuity (wanting to get care quickly); taking nitroglycerin; having a history of angina, AMI, or other types of coronary heart disease; being a "frequent flier" in terms of EMS use; lacking physical activity at onset; being more than 10 miles from a hospital; being told to use EMS and to "go quickly" to the hospital; and having the perception that symptoms are due to a heart attack.

Factors inhibiting EMS use. Demographic factors inhibiting EMS use include being young and male; racial and ethnic minority status (Latinos, Asian Americans and Pacific Islanders, and Native Americans use EMS less than African Americans; language barriers, cultural practices, and immigration concerns are other factors); higher education and income; and car ownership. Resource-related factors inhibiting EMS use include lack of a regular physician and health insurance; having private insurance; nonsubscription to an EMS prepayment plan; calling a physician or hospital; and lack of a hospital in the county, 9–1–1 service, or a telephone. Other factors are related to the person's perceptions—that he/she will not be able to choose a hospital; that EMS is for "dire" emergencies only; that EMS service will be unresponsive and of poor quality; and that EMS is for the poor. The perception of embarrassment is related to the possibility of a false positive diagnosis at the ED; neighborhood disruption; not wanting to have strangers in personal living quarters; and self-presentation concerns. Other perceptions are the potential to disturb family members; possible loss of control; the idea that driving to the hospital is easier and faster; and believing that symptoms are not serious and will go away. Other factors include being engaged in self-treatment; being unaware of EMS benefits; and being told to wait before going to the ED.

Interactions with social situations. Dr. Alonzo said that demographics, resources, and perceptions interact within socially defined daily situations where we experience the intersection

of biophysical, psychological, social, and other cultural factors, as well as the factors mentioned above. In socially defined situations, people bring their own particular circumstances, experiences, and fate to issues such as health problems. They use "illness representations" to cope with situations by labeling symptoms, thinking of causes for them, creating a timeline for the symptoms based on experience, and having an idea of how to cure/control symptoms and know their consequences. They construct solutions covertly, try out the constructed solutions, evaluate their solutions in action, and sometimes begin again if not satisfied with their solution.

People simultaneously solve competing problems, balancing symptoms with social situations such as concern for a parent's health, work-related decisions, and a child or grandchild's soccer game. People with severe symptoms tend to call EMS quickly—and this can outweigh being enmeshed in social situations; however, in general, individuals want to retain participation in these situations. They covertly consider what to do if symptoms do not resolve, addressing both facilitating and inhibiting factors. If ACS symptoms do not resolve, they may consider possible medical care and travel modes.

Dr. Alonzo asked the Coordinating Committee to consider how they can intervene in terms of social situations, resources, and perceptions to get people to use EMS. The committee needed to reflect upon what is immutable and what is modifiable in terms of resources and perceptions.

KEEP IN MIND: ACT IN TIME TO HEART ATTACK SIGNS (Ms. Terry Long)

Ms. Long, Senior Manager of Health Communications and Information Services, provided an overview of NHAAP's Act in Time to Heart Attack Signs campaign—an important resource that aims to get patients into treatment quickly once they are experiencing heart attack symptoms. (Refer to slides in attachment I.) She recognized three organizations that helped develop the educational materials: the AHA, the American Red Cross, and the National Council on the Aging (NCOA). These organizations have systems and networks to get the information to the public; they integrate the Act in Time materials into the materials they provide to various populations in which they have a presence. For example, the NCOA presents educational sessions at senior centers.

Ms. Long noted that NHLBI's REACT program studied the effect of community education on reducing delay time, and the Act in Time campaign adapted the messages developed for REACT for national dissemination. The ultimate goal is to reduce patient delay and save lives by increasing the number of heart attack victims who are treated within the first hour of experiencing symptoms—the period in which artery-opening treatments are most effective. Act in Time targets health care professionals, patients, and the public—principally through intermediary groups. The campaign used REACT findings and other research to shape strategies and materials and update heart attack warning signs. Key campaign messages include:

- Learn the warning signs of a heart attack and know what to do if one happens.
- Treatments can stop a heart attack it its tracks, and they work best if given within 1 hour of the start of symptoms.

- Reasons people delay calling 9–1–1. Uncertainty is normal. When in doubt check it out. The "Hollywood heart attack" is not the only way heart attacks occur.

- Minutes matter—call 9–1–1 within 5 minutes.

- Plan ahead for what to do in the event of symptoms.

The Act in Time patient materials include brochures, a wallet card, a 1-hour community education presentation with video, and a Web site (http://www.nhlbi.nih.gov/actintime/). Health professional materials include a provider card, a tear-off action plan tablet, and a Palm OS application. Four new products include an easy-to-read handout in English and Spanish, a heart attack survival discussion kit for Spanish speakers, and separate Honor Your Heart materials for American Indians and Alaska Natives.

Ms. Long thanked the Coordinating Committee organizations and others who have worked to disseminate Act in Time messages and materials. As an example, she noted that Dr. Christine Crumlish placed an article in the American Nurse Association's newsletter and on their Web site. She urged members to keep up the good work and to give her or Ms. Hand their ideas for using the materials.

CREATING THE FUTURE (HOW WE GET TO WHERE WE WANT TO BE) (Ms. Michos)

Ms. Michos stated that the morning meeting had covered a lot—including underutilization of EMS, benefits of transport by EMS, the patient perspective, social/psychological aspects, and programs that are already in place. The goal for the remainder of the meeting is to identify strategies to increase utilization of EMS by patients with ACS. The Coordinating Committee's job is to specify strategies and actions to achieve this goal. The facilitators will take the breakout groups through a structured process this afternoon and tomorrow morning.

DAY 1—OCTOBER 25, AFTERNOON

BREAKOUT GROUPS—SESSION 1: IDENTIFY STRATEGIES FOR THE QUESTION, "HOW DO WE GET AN INCREASE IN THE PERCENT OF PATIENTS WITH ACS BEING TRANSPORTED BY THE EMS SYSTEM?"

Breakout Group A

Participants/Facilitators

Angelo Alonzo, Ph.D.
Kay Ackerman

Table 1

James M. Atkins, M.D., F.A.C.C.
Gerald DeVaughn, M.D., F.A.C.C.
Julie Bracken, R.N., M.S., C.E.N., A.P.N.
Jonathan Moore, E.M.T.-P.
M. Ray Holt, Pharm.D.

Table 2

Andrea G. Gelzer, M.D.
Joseph P. Ornato, M.D., F.A.C.P., F.A.C.C., F.A.C.E.P.
Diane L. Carroll, R.N., Ph.D.
Karen Halupke, R.N., M.Ed.
Arthur A. Ciarkowski, M.S.E., M.B.A., M.P.A.

Table 3

Richard Gillum, M.D., F.A.C.C.
Barbara Hatcher, Ph.D., R.N.
Robert H. Christenson, Ph.D., D.A.B.C.C., F.A.C.B.
Blanca Fuertes, M.P.A. (guest)
Robert J. Zalenski, M.D., M.A.

Table 4

J. Lee Garvey, M.D.
Harry P. Selker, M.D., M.S.P.H.
Jay Merchant, M.H.A.
Jonathan Esptein (guest)
Sharon Henry, R.D. (guest)

Dr. Alonzo, lead facilitator for breakout group A, introduced the group's task: to identify strategies that will help increase the proportion of people who use EMS for ACS episodes. He asked participants to "think outside the box" and also determine whether the "box" needs fixing. The group will develop separate strategies for patients and for EMS. (Please see attachment K for the breakout group's typed worksheets.)

Participants made the following comments:

- There is variability in EMS quality and no standard message among EMS providers.
- The news media show both the good and the bad of EMS, and they tend to emphasize the more negative aspects.
- A barrier to EMS use is that patients want to go to the hospital of their choice.
- Celebrity role models are needed to shape behavior. The National Cancer Institute (NCI) has used celebrities successfully in its breast cancer education campaign.
- Should EMS transport everyone with symptoms that could be ACS? Can EMS manage all these people? Will this lead to delay in treatment of patients with true ACS?
- Should the focus be on people who have ACS or people with symptoms of ACS? Are there people with ACS who can come to the ED safely without EMS?
- How should large groups of people with vague symptoms be handled? Some people with undefined symptoms have MI, including a member of this breakout group and the guest speakers who have presented their stories at past Coordinating Committee meetings.
- While there is evidence that public education will increase patient use of EMS, educational campaigns tend to lose power with time. Messages should be delivered in a new way—or new messages should be provided.

Patient-Related Strategies

Dr. Alonzo asked the participants at the four tables to write down their patient-related strategies to increase 9–1–1 utilization; these could be oriented to the patient, the patient's family and coworkers, or the community. After discussing their strategies, participants reported the following strategies:

- Educate children to recognize ACS in their parents. They could influence their parents to make the right decision to call 9–1–1.
- Use celebrities to model behavior. Get people like former President Bill Clinton or others to appear on shows like "Oprah Winfrey" and act as spokespersons, talking about their experiences with ACS.

- Target public information campaigns to minority communities with language barriers and varying cultural beliefs.

- Broaden the message and narrow the audience. Target high-risk people through primary care physicians (PCPs), pharmacies, senior centers, the Medicare database, and hospital admission records. The high-risk population includes people with a diagnosis of hypertension, cardiac disease, and diabetes, as well as smokers. Distribute wallet cards containing educational messages with prescriptions.

- Create a two-tier system that encourages high-risk persons to call 9–1–1. If they choose not to call 9–1–1, advise them to get to the hospital as quickly as possible. The best way is to call 9–1–1, but it is not the only way.

- Create another number (e.g., 9–1–2 or 3–1–1) to allow people to talk to someone about their symptoms and get heart information. This will provide prescreening triage. (In Dallas and Chicago, 3–1–1 is used for nonemergency requests for service; the same operator handles both 3–1–1 and 9–1–1 calls.)

- Encourage screening to make people aware of their risk profile and potential risk for ACS. Provide education (e.g., Act in Time materials) for those at high risk to alert them about what to do if they have symptoms. The outcomes and costs of screening need to be evaluated. A participant cautioned that the types of screening should be limited. For example, stress tests for all people over age 40 will result in too many people getting catheterization. Electron beam computed tomography may lead people with a high calcium score to get catheterization or nuclear scans, but guidelines for followup are lacking. Identification of atherosclerosis does not indicate ACS, though it is a risk factor.

- Provide CPR training for family members of high-risk patients. This will require retooling CPR classes.

- Stratify education with different messages for three groups: bystanders, family members, and patients.

- Create gender- and age-specific messages for patients.

- Develop an educational videogame to show the consequences of not calling 9–1–1 (e.g., lives can be lost).

- Fund EMS research to determine which patients are helped by EMS. Conduct research on high-risk patients and identify patients in the community with early ACS.

- Provide home ECG monitors for selected patients.

System-Related Strategies

Dr. Alonzo asked the group to consider what the system can do to overcome barriers to calling 9–1–1 and what it can deliver to patients when they call. Does the system need to be changed? The tables met to discuss their strategies and then reported the following system-oriented strategies:

- Provide universal access to health care.
- Conduct research on the advisability of treatment (immediate thrombolytic therapy or other cardiac therapy) at local community hospitals versus transport to more distant cardiac centers.
- Develop clear cardiac triage guidelines to get patients to the appropriate center. Educate prehospital providers to adopt these guidelines.
- Enhance the patient's choice of hospital/provider and reduce public embarrassment. Allow family members to accompany the patient in the ambulance (this may involve liability issues).
- Elevate the status of EMS. Educate the public to be more aware of the health role of EMS (it's not just fire, police, and emergency services workers). Improve the public's image of EMS responders to make the public more accepting of EMS. Approach the public more positively.
- Do not allow hospital diversion (shifting patients) unless the hospital is experiencing an emergency. Fix overcrowding in hospitals; discharge patients appropriately to free up ED beds. (It was noted that when one hospital needs to go on diversion, it is almost always true that the entire system is overloaded. Patients who are diverted often get out and drive themselves; some patients even call 9–1–1 from the hospital.)
- Lower the threshold for patients to allow them to access help earlier. Address barriers such as cost.
- Require hospitals to disclose data on EMS performance through a quality report. The report could include such information as response times and time to defibrillation. The audience for the report includes patients, providers, and purchasers.
- Recruit diverse EMS staff who can relate to the language/culture of the community.
- Establish a QI system for EMS (e.g., include quality evaluation of ECG readings).
- Provide an option of "no transport" to be more flexible and responsive to patient needs. One option could include patient assessment at the scene. Research is needed on this. (It was noted that billing is an incentive to transport.)

- Ensure that EMS responds appropriately—e.g., no lights/sirens for the last mile to the patient's residence.

- Encourage health insurance companies to provide clear messages about when patients should call 9–1–1.

- Establish national standards for EMS systems in terms of training, equipment, and levels of service for specific populations. Increase consistency across EMS.

- Provide a voice for distributing resources and funding to EMS (which is a bridge between public health and public safety).

- Put pressure on decisionmakers to create an EMS agency that has its own budget.

- Get advice from economists on how to market EMS, analyze cost/benefit, and allocate resources.

- Develop a best practices database for EMS to share how other communities are dealing with problems such as traffic. (Seattle has a model for this.)

Breakout Group B

Participants/Facilitators

Allen Braslow, Ph.D.
Dottie St. John

Table 1

Pat Bonifer-Tiedt, Sc.M., M.S.
Stephen V. Cantrill, M.D., M.P.H., F.A.C.E.P.
Christine Crumlish, Ph.D., R.N.
Drew E. Dawson
Bruce MacLeod, M.D., F.A.C.E.P.

Table 2

Robert L. Jesse, M.D., Ph.D.
John McGinnity, M.S., P.A.-C.
David E. Simmons, Jr., M.S.N., R.N., C.N.N.
Robert Bass, M.D.
Mr. Jim Judge (Guest)

Table 3

Carol Cunningham Base, R.N., M.S., B.S.N., COHN-S
Emmett B. Ferguson, M.D., M.P.H.
Lawrence Jones, M.D.
David B. Snyder, R.Ph., D.D.S.

Table 4

Robert Cobb, Ph.D.
Charles L. Curry, M.D.
Bob Schriever (Guest)

Observers

Mary Beth Michos, R.N.
Kristi Savino
Mary M. Hand, R.N., M.S.P.H.
Patrice Desvigne-Nickens, M.D. (NHLBI)
George Sopko, M.D. (NHLBI)

Dr. Braslow, lead facilitator for breakout group B, introduced the group's task: to identify strategies that will help increase the proportion of people who use EMS for ACS episodes. The session began with a discussion of how people in the room may have used EMS in the past. Dr. Braslow then presented the question, "What type of programs could be developed to get the layperson to use EMS?" (See attachment K for the breakout group's typed worksheets.)

Dr. Braslow explained that the group will develop separate strategies for patients and for EMS.

Participants made the following comments:

- Only 25 percent of people who have an MI experience "classic" MI symptoms such as chest pain, according to Dr. Mickey Eisenberg's thought paper.

- NHAAP has tried to have its message align with other organizations that provide public education for heart attack symptoms.

- Chest discomfort is given too much emphasis—need to go further such as shortness of breath, sweating, etc.

Patient-Related Strategies

Dr. Braslow asked the participants at the four tables to write down their patient-related strategies to increase 9–1–1 utilization; these could be oriented to patient, the patient's family and coworkers, or the community. He advised each group to identify two to five specific strategies to present to the larger group. After discussing their strategies, participants reported the following strategies:

Table 1

- Celebrity role models such as former President Bill Clinton and James Gandolfini ("The Sopranos") could appear on television shows such as the "Oprah Winfrey" show to educate the public about utilizing EMS. Discussion also included having a role model/model patient of what patients should do such as following the symptom message in the Act in Time campaign materials.

- Broaden the representative ACS symptoms message. Put a minimum time limit on when the patient should call (sensitivity versus specificity). It was noted that men present differently than women.

- Select a mode of response—tone down the "lights and sirens" approach of multiple responders; this type of public attention can deter individuals from taking action. Participants also discussed educating the public about what to expect when calling EMS, e.g., the possibility of lights and sirens, multiple vehicles, etc.

- Response time and how it is handled by EMS—a less immediate, nonemergency response can be just as effective as an emergency response; it also can help to relieve the embarrassment factor for the patient.

Table 2

- Public education needs to be a sustained effort, not just a one time dose. Ideas included:
  - Initial education should include how to recognize and respond to ACS symptoms with CPR and AED training.
  - Target patients later in life.
  - Target the general public periodically, especially when "teachable moments" arise—e.g., a successful resuscitation with an AED or media coverage surrounding a prominent figure such as former President Bill Clinton dealing with a personal early cardiac emergency.
  - One participant mentioned that there are long- and short-term strategies. Starting ACS awareness education in high school may be too late. It may be best to start at a younger age and use scenario-based learning. Children can bring the message home to their families. NHTSA had success educating children about seatbelt safety. Could something similar be done for heart attack education?
- Develop scientific data on the message related to sensitivity and specificity for AMI. Determine the best message to disseminate. Once the appropriate message is reassessed, it can be given relevant context for the audience.

Table 3

- How do we overcome the obstacles that hinder early patient recognition and response in light of other priorities that individuals may have?
- Consider publicity factors such as public service announcements by survivors.
- Cost issues are an increasing factor that people consider.
- Develop and evaluate the patient delay message over time.

Table 4

This group focused on education for the individual, which included:

- Make family members aware of the symptoms since 70 percent of all MI's occur in or around the home.
- Redefine the term "heart attack," including a broader emphasis on other symptoms besides chest pain.
- Improve communication between physicians and their patients about the patient's risk of an MI based on their risk factors and other past medical history.

- Enlist the American Association of Retired Persons (AARP), an influential organization for people over the age of 50. This group could disseminate early MI recognition messages to their millions of members.

- Target other nonphysician health care entities such as health payers and exercise facilities through such vehicles as the *American Journal of Health Promotion*.

- Use models (such as celebrities) who have responded appropriately to cardiac events to reach the target audience about recognition and action.

- There is a need for a classic public relations campaign to bring home the message and its meaning.

Dr. Braslow asked, "Is Act in Time enough?" The response suggested that people may not know that it is available. The facilitator reminded everyone that the NHAAP Coordinating Committee members are asked to regularly apprise their respective organizations of the campaign. A suggestion was made that a physician's organization or nurse educators' group could teach and offer this information and communicate this to the NHAAP. One participant stated that she had taken the information to a senior center and they liked the concept that a hospital could essentially be brought to an individual's home when EMS arrived.

System-Related Strategies

Dr. Braslow asked the group to consider what the system can do to overcome barriers to calling 9–1–1 and what it can deliver to patients when they call. Does the system need to be changed? The subgroups met to discuss their strategies and then reported the following system-oriented strategies:

The participants were reminded of the following question before sharing their thoughts, "How do we get an increase in the percent of patients with ACS being transported by the EMS system?"

Table 4 (Note: This is in the order in which the tables were presented.)

- The public needs to know more about how EMS works: What is the value of EMS, how can they help, will they give advice by phone?

- Explore nanotechnology for improved cardiac-related diagnostics/implants.

- Improve dispatcher call training at 9–1–1 centers; e.g., San Diego trains retirees as first responders and positions them in old police cruisers; they respond with lights only and no sirens.

- Simplify the cost factors.

Table 3

- Consider tort reform. Liability issues are involved in every aspect of this issue and are the bottom line.

- Be aware of cost issues—do more testing than might be required—defensive medicine.

- EMS groups and other providers can help to get the word out; e.g., fire departments could be used as information dissemination centers to relay what EMS does and how to deal with a heart attack.

- Expand the 9–1–1 service so EMS can determine the best course of action and respond with an appropriate response level. Call 9–1–2 instead for nonemergency situations.

Table 2

- Promote the positive role that EMS can play in educating the public and in commonly providing free emergency transport (albeit partly an insurance issue).

- Consider alternatives to 9–1–1, a number that people would feel more comfortable calling, but which would be linked to 9–1–1 if a dispatch is necessary.

- Where possible and appropriate, review and modify EMS response. Lights and sirens and multiple response vehicles are not needed on every call; full response should be sent only when necessary. One alternative would be to send a mid-level provider who could arrive in a van and do a cardiac evaluation.

- Increase U.S. citizens' access to EMS; set the goal at 100 percent of the population having access to 9–1–1, BLS, and ALS.

Table 1

- Develop a toolkit that EMS can use in order to fully comprehend the denominator of chest pain patients given that all patients are not being transported by EMS. Community-based data would be needed. For example, a relationship would need to be established with the hospital to determine what benchmarks should be set by the EMS system.

- Use condition codes for insurance reimbursement as opposed to diagnosis codes. Diagnosis codes lead to denial of reimbursement and the patient must pay for the transport.

- Promote use of muted lights and sirens for certain types of calls.

- Increase use of dispatch instructions to the lay public. The caller would be given prearrival instructions such as to give CPR or other condition-specific treatments. Perhaps video instruction could be used on a cable access channel, since many people learn best by visual training.

- Patient-centered strategy—emphasize the message that patients who arrive in an ambulance get faster treatment. Bypass the waiting list, call 9–1–1. The National Emergency Number Association has found that only about 140 counties are not covered by basic or enhanced 9–1–1. It is estimated that 99 percent of the population in the United States has 9–1–1 available.

LARGE GROUP SESSION—REPORT FROM BREAKOUT GROUPS IDENTIFYING STRATEGIES FOR INCREASING THE PERCENT OF PATIENTS WITH ACS BEING TRANSPORTED BY EMS

Dr. MacLeod thanked everyone for their creative energy in the breakout groups. He said that he participated in breakout group B, and that the groups would report what happened in their sessions. He thanked the facilitators. Without further ado, he asked Drs. Angelo and Braslow to summarize for the breakout sessions.

The whole group heard reports from the two breakout groups that had been charged with identifying both patient-related and system-related strategies to increase the percent of patients with ACS being transported by EMS.

Round 1: Patient Issues

Breakout Group A Report (Dr. Alonzo)

Dr. Alonzo, the breakout group A facilitator, thanked Ms. Ackerman for her assistance in recording the group's comments. He reported that the group identified the following patient-related strategies to facilitate ACS patients utilizing 9–1–1:

- Focus on educating children about ACS symptoms and encouraging them to call EMS if their parents or grandparents have ACS symptoms.

- Get public figures (e.g., former President Bill Clinton) to serve as spokespersons for EMS or for ACS in general.

- Be sensitive to cultural groups. Public information campaigns should target specific language/cultural groups in the community.

- Broaden the message and narrow the audience to a high-risk group. Screen the population for ACS risk, identify high-risk patients, and target this group for special education.

- Give high-risk patients broad information about EMS and ACS. Use innovative ways to educate them; e.g., educate them about risk factors associated with ACS such as

high blood pressure and diabetes, provide information at the pharmacy, and use Medicare/Medicaid rosters to identify them.

- Provide home ECG monitors for high-risk patients.

- Use a two-tiered system. Choose an alternative phone number (e.g., 9–1–2) to allow the public to get information about ACS and EMS.

- Retool CPR training for family members of high-risk patients. Stratify messages for patients, families, and friends.

- Develop videogames that illustrate how a person could lose a family member if he/she does not act appropriately when that family member has chest pain or any heart attack symptom.

- Stratify messages by creating gender- and age-specific messages.

- Conduct research to better identify persons with ACS.

Breakout Group B Report (Dr. Braslow)

Dr. Braslow thanked the group members and Ms. St. John for summarizing the discussion. He reported that the group identified the following patient-related strategies to increase the percentage of patients with ACS who access the EMS system:

- Address issues of rationalization/denial of ACS. Be more sensitive to cost issues.

- Increase awareness that heart attack is not just chest pain.

- Get data to support messages for specific audiences.

- Increase sensitivity to the "calling the Marines" response.

- Create sustained, long-term messages. Learn from NHTSA's experience with its seat belt compliance campaign (NHTSA learned how and when to use different messages).

- Start messages when children are young.

- Target audiences include senior citizens and spouses of at-risk persons.

- Provide role models using public figures such as former President Bill Clinton. Provide exposure at AARP venues, on television shows such as the "Oprah Winfrey" show, at movie theaters, and on cruise ships.

- Take advantage of "teachable moments"—e.g., when former President Bill Clinton was in the news for his heart surgery.

Round 2: Systems Issues

Breakout Group A Report (Dr. Alonzo)

Dr. Alonzo reported on the system-related strategies identified by breakout group A.

- Provide universal health care.
- Conduct research to support decisions to go to a local hospital versus a cardiac center. Give patients a choice in this decision. Possibly allow family members to accompany the patient in the ambulance (this may involve liability issues).
- Reduce embarrassment (e.g., by not having lights and sirens). Encourage a policy of "no lights" for the last mile to the patient residence (to decrease embarrassment).
- Provide clear cardiac triage guidelines for patients who call 9–1–1.
- Ensure better public information about EMS.
- Encourage EMS to take responsibility for advocating for itself by educating the public about what it can offer and marketing its plan to the public.
- Improve the public/EMS interface. Make EMS more sensitive to patient needs.
- Do not allow hospitals to divert patients because this clogs the system.
- Address the problem of overcrowding in EDs. Look at hospitals' internal problems.
- Provide national standards for EMS.
- Promote a national data system for EMS to provide better data on best practices. Allow more disclosure of EMS data to increase quality control.
- To promote national ownership of EMS, create a Department of EMS with its own Federal funding.
- Provide lower thresholds for patients to get care information. For example, allow them to use a 3–1–1 or a 9–1–2 number. (In Dallas and Chicago, 3–1–1 is the number to call for nonemergency requests for service.)
- Encourage minority recruitment for EMS personnel.
- Be more flexible to patients' needs; do not make transport to the ED mandatory for each call.
- Encourage health insurance companies to provide patients with a clear message about when they should call 9–1–1.

Breakout Group B Report (Dr. Braslow)

Dr. Braslow reported on the system-related strategies identified by breakout group B.

- Use EMS to educate/inform the public. A paper by Dr. Mickey Eisenberg described how firefighters from King County, Washington, went out in the community to discuss issues of how to respond to heart attack symptoms; this effort included leaving educational materials on people's doorknobs (if they were not home during the time of contact). People are more likely to call EMS if they are familiar with the service.

- Educate doctors, HMOs (include other types of health insurance) about EMS. Quantify suspected issues of miseducation—e.g., instances where physicians or HMOs may not appropriately refer patients to EMS.

- Increase access to 9–1–1 (which is in 96 percent of communities).

- Provide expanded protocols to ensure that dispatch information is given to patients after they call.

- Ensure that there are alternative responses to "sending the Marines."

- To lower the cost of EMS, encourage condition codes versus diagnostic codes for reimbursement.

Dr. MacLeod thanked the facilitators and the breakout group members and said they would meet the following day to brainstorm action plans to address the strategies.

Ms. Hand noted that Dr. Bob Cobb, representing the National Emergency Number Association (NENA), had to leave the meeting early. He left copies of a NENA press release on its Next Generation 9–1–1 program.

DAY 2—OCTOBER 26, MORNING

LARGE GROUP SESSION—RECOMMENDED STRATEGIES TO PROMOTE EMS UTILIZATION: REVIEW OF TOP LINE RECOMMENDATIONS FROM BREAKOUT GROUPS A AND B (Dr. MacLeod)

Dr. MacLeod welcomed the Coordinating Committee to the second day of the meeting. He reported that the previous night, the facilitators synthesized the feedback from the day 1 breakout sessions to create eight strategies to increase EMS utilization by patients experiencing ACS symptoms. He explained that the breakout groups would meet again that same day to select their top four strategies and then develop action plans for each strategy.

Strategies Identified on Day 1

1. Develop a multimodal, long-term, public education approach that starts with children and then targets high-risk audiences and known underserved groups. Use famous spokespersons/role models; take advantage of teachable moments; use data-based approaches to develop the best message; broaden the message (e.g., it is not just chest pain) and narrow the audience; address cultural and language diversity issues; and create a patient–EMS interface and EMS marketing.

2. Explore alternatives to the traditional 9–1–1 entry to the EMS system—e.g., 3–1–1, and 2–1–1.

3. Develop alternative models for EMS response to patients with ACS symptoms. This includes changing the "send the Marines" mindset by reducing lights and sirens, providing a chest pain mobile unit, considering alternatives to the mandatory transport model (e.g., having an advanced paramedic unit assess the situation), and addressing cost issues driving mandatory transport.

4. Reduce the social cost of calling EMS—address the issues of embarrassment, lights and sirens, loss of control/choice, and cultural/language concerns.

5. Eliminate cost as an issue for the patient in determining whether to call EMS.

6. Apply QI approaches to EMS treatment of patients with ACS symptoms. These could include developing a QI toolkit to assess treatment of chest pain patients, making QI data available to the public for accountability and transparency, ensuring incorporation of approaches addressing the community's cultural and language needs, and applying QI principles to EMS to identify best practices.

7. Develop a program of education for medical providers about EMS capabilities and benefits.

8. Establish a national focus for the EMS system to provide system standards, funding, and research.

Discussion

During the discussion, the following comments were made by Coordinating Committee members (grouped here by topic).

The Goal

- Add the word "timely" to the goal—i.e., to increase timely utilization of EMS. In order to decrease morbidity and mortality from ACS, the goal should be to reduce time to treatment by increasing timely EMS utilization.

Symptoms and Risk Stratification

- A focus on only patients with ACS will avoid bringing in "noise" that could flood the system with patients, overdemand in urban areas, and understaffing in rural areas. (Many urban EMS systems need private ambulances because the municipal system cannot respond.)

- The REACT study did not indicate that overutilization of EMS was a problem. The Use It, Don't Abuse It program led to a 5 percent increase in EMS business, but the ratio of signal to noise stayed the same.

- Noise in the system may be necessary to identify more people with ACS. We need to cast a broad net because symptoms may not be that specific. Although we should aim at people with a high probability of having ACS, this is a complex target that is not easy to hit.

- Just because a patient does not have ACS does not mean he/she does not have other diseases. Anyone with chest pain should probably be evaluated at the hospital.

- Patient evaluation involves risk stratification, which done incorrectly can lead to MIs in the low-risk population. The population with missed MIs is usually younger and has less classic symptoms. Easier ways to evaluate patients in the ED are needed.

- Primary risk stratification does not need to be done in the hospital. Other modes of entry to the EMS system are needed. We need to get people rapidly into a protective environment and then stratify their risk and get high-risk people to the hospital.

Education

- Risk stratification for an educational target is separate from risk stratification in the ED. We need to identify and educate people who have a higher probability of ACS and target the message to them.

- Because REACT did not show success with its primary endpoint, NHAAP has focused on high-risk populations. A general message will not differentiate among those who need/don't need EMS. NHAAP has focused on broadening the message while narrowing the audience to focus on high-risk patients.

- Multimodal, long-term education is needed to make the education campaign more sustainable.

- Do the 85 percent of people with chest pain who do not have ACS receive education such as the Act in Time materials? We must educate the people who go through the health care system.

Other Issues

- A survey showed that only 15 percent of primary care provider offices had defibrillators. Patients must be in a protective environment so that they can be treated rapidly if they have a catastrophic event.

- We should be cautious in trying to address the diversion issue because of its complexity. An easy solution for EMS (dropping the patient at the closest hospital) is not necessarily best for patient care.

BREAKOUT GROUPS—SESSION 2: ACTION PLANS FOR IMPLEMENTING IDENTIFIED STRATEGIES TO INCREASE EMS UTILIZATION BY ACS PATIENTS

The goal of the breakout sessions on the second day of the meeting was to identify action steps to achieve/implement selected strategies identified on day 1.

Breakout Group A

To begin, the participants prioritized the list of eight strategies presented at the large group meeting and selected five to discuss further. Table 1 selected strategy 6; table 2 selected strategy 1; table 3 selected strategies 2 and 3 combined; and table 4 selected strategy 8.

Dr. Alonzo asked participants at each table to identify one to two actions to achieve these strategies. They were asked to consider **what** actions can address the strategy; **who** (what organizations) are most appropriate to address each action; **when** the actions should be accomplished; and **how** success will be measured, and how much incremental change can be expected.

Selected Strategies and Action Plans To Increase EMS Utilization for ACS Patients

Strategy 8: Establish a National Focus for EMS To Provide System Standards, Funding, and Research

Dr. Selker reported for table 4, which had identified actions to address establishing a national focus for EMS to provide system standards, funding, and research in the following three areas:

- Lead agency. A national lead agency for EMS should be established, with appropriate liaisons with other agencies. This is a long-term goal because it will require national legislation. Success will be measured when the agency is established. Funding should be a Government responsibility (supported by national or State taxes) for those communities needing help. The need for funding will be articulated now. When the agency is established, its results can be measured.

- Standards. System and personnel standards should be established. Personnel standards should include licensure of EMS personnel. This effort should ideally be directed by a lead agency. Current curriculum standards should be expanded to include competency standards and ascertainment. The need for standards should be articulated now and expansion should be encouraged. The use of 12-lead ECG should be standard in 100 percent of communities providing advanced cardiac life support (ACLS) services in all States, with certified competency. This will be accomplished in 2 years. (The State of Massachusetts was able to accomplish this in a 2-year timeframe.) Success will be measured by rates of ECG use, as measured by State surveys.

- EMS research. EMS research on the recognition and care of ACS patients should be supported by agencies such as the National Institutes of Health (NIH), AHRQ, CDC, and HRSA. General EMS/ED research also should be supported. A lead agency will

ideally be responsible for this, but in the meantime, this should be done by States through State EMS directors and professional organizations—hopefully with more national leadership from groups such as the NHAAP Coordinating Committee and its member organizations. This effort should begin now and be continuous. Success will be measured by the amount of targeted research dollars and the number of projects under way.

Strategy 1: Multimodal, Long-Term Education

Dr. Carroll reported that table 2's priority strategy was to develop a multimodel, long-term, public education campaign using three action plans:

- Celebrity spokespersons. NHLBI will contact two spokespersons (e.g., Oprah Winfrey) to help in the effort to have celebrities discuss their response to ACS symptoms. An NHLBI public relations group will be responsible for this effort and implement it by the end of fiscal year (FY) 2005. The measure will be the number of patients with ACS who contact 9–1–1.

- Teachable moments. All patients with ACS symptoms will receive educational materials at discharge from the ED, and high-risk patients visiting physicians' offices will receive Act in Time to Heart Attack Signs materials on symptoms of ACS and the actions to take. The ED and physician practices will implement this plan, which will be accomplished by the end of FY 2005. The measure will be the number of patients with ACS who contact 9–1–1. Another measure will be a decrease in the number of patients driving themselves to the ED (e.g., a 50 percent decrease in 2 years, from 18 percent to 9 percent).

- Education for children and youth. Health education will be expanded for students in elementary school to high school. This will include teaching about a healthy lifestyle; providing information about the symptoms and signs of ACS; training students to use AEDs; providing CPR training; and requiring CPR certification as a requirement for graduation. Young children will be exposed to EMS by having fire trucks visit schools.

This effort will require a Federal mandate and support from State school systems and districts, and it will be supported by buy-in of youth organizations. The intervention will be established by 2008. Success will be measured by increases in CPR certification and by the number of ambulances visiting schools.

Strategy 6: Apply Quality Assurance (QA) and QI Pathways for EMS and ED

Dr. Atkins reported that table 1 identified separate QA and QI strategies for both EMS and ED systems.

- EMS. Examine the rates of use for the following measures in the ED for patients dispatched by 9–1–1 for chest pain and shortness of breath: percentage of patients who received a prehospital 12-lead ECG, nitroglycerin, and transport to the hospital

by EMS. If there is a policy on where the patient should be taken, determine whether the patient was taken to the appropriate destination. Agencies that will be responsible for this are NHTSA, AHRQ, the National Association of Emergency Medical Technicians, the International Association of Fire Fighters, NAEMSP, the National Association of EMS State Directors, ACC, and AHA. A writing group will develop a plan in 18 months, and the plan will be implemented 2 years later. The measure of success will be the number of States that adopted the plan, and the reports received from the agencies.

- ED. Data will be collected on patients at the following five levels:

  1. STEMI.

  2. Non-STEMI/unstable angina.

  3. First ECG/biomarker/enzyme negative, but medical history/risk factors indicate high probability of ACS.

  4. First ECG/biomarker/enzyme negative, but medical history/risk factors indicate low probability of ACS.

  5. Noncardiac chest pain.

The following recommendations were made for the various levels:

- Level 1: Time to percutaneous transluminal coronary angioplasty/fibrinolytics; rates of morbidity/mortality; adjunctive medications (aspirin, beta blockers, angiotensin converting enzyme inhibitors, clopidogrel, and other appropriate drugs) and whether the patient received the medication at the appropriate time; and education for patients in the hospital.

- Level 2: Appropriate adjunctive medications; percutaneous coronary intervention if indicated; and education for patients.

- Levels 3, 4, and 5: A QI system in the hospital for appropriateness of classification; tests done for each level and medications for each level; and education for patients.

The agencies to be involved in this action plan include the ACC, AHA, the American College of Emergency Physicians, the American College of Physicians, the Society of Academic Emergency Medicine, the American Society of Internal Medicine, and the Society of Chest Pain Centers. Guidelines already exist. A working group (including members from the ACC/AHA) will develop QA markers using existing guidelines. State QI organizations set up by Medicare will examine quality of care. A national plan will be developed in 18 months, with implementation 2 years later.

Results will be measured by expanded reports about the timeliness and appropriateness of therapy from the Joint Commission on Accreditation of Healthcare Organizations and the Centers for Medicare & Medicaid Services (CMS). The systems are already in place; State QI

organizations have been established by Medicare to look at quality of patient care, with hospitals reporting to these organizations. The end result will be to establish best practices.

Comments

- Some organizations already report this information (e.g., the Society of Chest Pain Centers) but there is no organized or universal effort.

- There is a need to teach EMS how to gather data. NHTSA is developing a national dataset. The involvement of State directors of EMS will be important to implement a dataset and ensure that the data are collected correctly.

Strategies 2 and 3: Develop Alternative Responses

Dr. Robert Zalenski reported for table 3, whose plan is to attract ACS patients to a friendlier, more accessible system and to decrease the fear factor. The alternative response models address both patients and EMS (thus, strategies 2 and 3 were combined).

- Alternative Response Models. The action is to establish a pilot program that will provide two telephone numbers: 9–1–1 for emergencies and 3–1–1 for nonemergencies or if a person is not sure whether there is a problem. Members of the public will make their own decisions about which number to call. Dispatchers will get two scripts with a tiered response (three options):

  – A full response if the situation is assessed as an emergency.

  – A paramedic house call or a chest pain mobile that provides standardized assessment.

  – Advice/reassurance, with recommendations to call a physician, self-transport to the ED, or call EMS.

The EMS system, including local EMS providers, firefighters, and EMS directors will launch the public project by 2005. Success will be measured by pre- and postanalysis to see if the intervention results in an increased number of patients with symptoms of ACS that are transported by EMS. Outcomes will include an increase in true positives for ACS, a decrease in the use of full response (lights/sirens) for conditions that are not time dependent, and cost savings from the tiered response.

Comments

- A research initiative on alternative systems for handling these patients should be considered.

- Many decisions are based on billing systems. It was noted that when there was no therapy for AMI (only bed rest), patients were kept in the intensive care unit for 3 weeks based on insurance tables. Appropriate guidelines are needed for each group.

- A question was raised about the legal liability of paramedics making house calls. State immunity provides some limits to liability, but there are no limits for private ambulance services.

It was noted that a staged study of patients who are sent from the ED to a chest pain center and then moved home will require a change in State laws.

Breakout Group B

To begin, the participants in breakout group B prioritized the list of strategies presented at the large group meeting and selected four to discuss further as the top priorities.

The top four priorities were chosen by the participants as follows and reported by the recorder, Ms. St. John:

- Strategy 1—Multimodal, long-term public education (table 1).
- Strategy 3—Alternative models for EMS system response (table 2).
- Strategy 4—Reduce social cost of calling EMS (table 3).
- Strategy 7—Education about EMS for medical providers (table 4).

Dr. Braslow asked participants at each table (who assigned themselves to a particular priority listed above) to identify one to two actions to achieve these strategies. They were asked to consider **what** actions can address the strategy; **who** (what organizations) are most appropriate to address each action; **when** the actions should be accomplished; and **how** success will be measured, and how much incremental change can be expected.

Selected Strategies and Action Plans for Increasing EMS Utilization for ACS Patients

Strategy 1: Multimodal, Long-Term, Public Education

The actions for table 1 were reported by Mr. Dawson.

- Written evaluation of the Act in Time to Heart Attack Signs campaign. By July 2005, NHLBI (with guidance from the NHAAP Education Subcommittee) shall develop a written plan to evaluate the utilization and effectiveness of the Act in Time to Heart Attack Signs campaign.
  - Ensure use of techniques and strategies that are effective and change people's behavior. Evaluate the efficacy of the existing program.
  - Continue to explore multiple ways behaviors can be changed and not just through education alone.
- Written strategy to guide ACS public information and interventions. By October 2007, NHLBI (in cooperation with CDC) shall use public health and marketing experts to design a comprehensive, written, data-driven strategy to guide ACS public information and interventions, and traditional and nontraditional approaches should be considered.
  - In addition to the traditional marketing campaign, explore social marketing and social norms marketing and other avenues frequently used by CDC.

- Evaluation of current Act in Time message. By February 2006, the Science Base Subcommittee shall evaluate the current Act in Time to Heart Attack Signs message with an emphasis on increasing sensitivity and maintaining or increasing specificity of the message; the subcommittee will report to the NHAAP Coordinating Committee.

The message will be reevaluated periodically to ensure that it is the most appropriate message for ACS patients; it will be inclusive of both traditional and nontraditional approaches to ACS public information and intervention.

Strategy 3: Alternative Models for EMS System Response

Table 2 was reported by Dr. Bass

- Evidence-based guidelines by EMS groups. By 2007, develop national evidence-based/consensus guidelines for dispatch, treatment, and disposition of patients with ACS symptoms (consider alternatives to current practice that would increase access of patients with ACS).

Hold a national evidence/consensus-based forum with NHTSA and national EMS associations and other interested parties, e.g. the National Academies of Emergency Medical Dispatch, the International Association of Fire Chiefs, the International Association of Fire Fighters, NAEMSP, NASEMSD, and NIH/NHAAP (funded by NHLBI). The measure will be a national survey (through the States) of the percent of jurisdictions that have partially or completely implemented these guidelines.

Strategy 4: Reduce the Social Cost of Calling EMS

Dr. Ferguson reported for table 4, which had identified actions primarily related to the issues of embarrassment and culture/language related to the potential EMS user. The problem of low EMS use needs to be better understood at the community level. It was suggested that a baseline evaluation survey be developed by NHAAP targeting school (schools), elderly (senior centers), and working populations (health fairs). Local EMS should be involved in planning and conducting the survey as well in the subsequent educational effort based on the survey. One objective of the survey will be to learn about the different outcomes of patients who arrive at the ED by ambulance versus those who use other modes of transportation.

Timeline

- Survey materials reviewed by NHAAP, second meeting of next year, 2006.
- Educational materials developed by the NHAAP: Fall 2005–2006.
- Assessment data: Results presented.

Strategy 7: Education for Medical Providers About EMS Capabilities and Benefits

Dr. MacLeod reported for table 4, strategy 7.

Develop an EMS capabilities template or campaign for medical providers to raise awareness of EMS and what it can provide. First, develop a template or campaign done by fire chiefs, which represent 50 percent of the services (fire services), paramedic organizations, or EMS medical providers in collaboration. It is estimated that this should take about a year. For the assessment portion, the measure of action is whether this (template or campaign) has been developed by these leadership organizations.

Next, table 4 suggested disseminating the EMS capabilities campaign at a local level. Involvement of local EMS providers would be important since all systems are different (this would take another year).

For assessment the goal would be approximately 50 percent dissemination of the campaign/template.

Comments

- Firefighters have great rapport with the community, but not necessarily with EMS doctors. Need to develop and further their visibility with other medical organizations.
- The AMA, AHA, and the ACC should be approached to endorse this template. Possibly add continuing medical education or other topics such as use of AEDs.
- Since this is local outreach, enlist the assistance of the county medical society.

LARGE GROUP SESSION—SECOND REPORTS FROM THE BREAKOUT GROUPS: ACTION PLANS FOR IMPLEMENTING IDENTIFIED STRATEGIES TO INCREASE EMS UTILIZATION BY ACS PATIENTS

Breakout groups A and B each reported on action plans for their top four strategies of the eight strategies identified on day 1.

Breakout Group A

Breakout group A selected strategies 1 (multimodal, long-term, public education), 2 and 3 (alternatives to traditional entry to the EMS, and alternative models for EMS response), 6 (QI approaches), and 8 (establish a national focus for EMS) as their top strategies. They were reported in the following order by spokespeople for each of the subgroups comprising breakout group A.

Strategy 6: QI Approaches (Dr. Atkins)

Dr. Atkins said that the group identified separate QI approaches for both the EMS and ED.

QI in EMS. In EMS, the proposed plan is to look at the percentage of patients dispatched as having chest pain or shortness of breath who received a rapid 12-lead ECG and nitroglycerin, the number who were transported to the hospital, the destination to which they were transported, and whether it was appropriate. Agencies involved in this effort will include NHTSA, AHRQ, the National Association of Emergency Medical Technicians, the International Association of Fire Fighters, NAEMSP, NASEMSD, ACC, and AHA. A task force made up of these groups will develop a plan in 18 months and then disseminate it. The plan will be implemented 2 years later. The measure will be the number of States that have adopted the plan and are receiving reports from agencies. The State agencies will publish the results to develop best practices.

QI in the ED. In the ED, patients will be triaged by five levels:

1. STEMI.
2. Non-STEMI/unstable angina.
3. First ECG/biomarker/enzyme negative; medical history shows high risk of ACS.
4. First ECG/biomarker/enzyme negative; medical history shows low probability of ACS.
5. Noncardiac chest pain.

The following recommendations were made for the various levels:

- Level 1: Time to PCI/fibrinolytics; rates of morbidity/mortality; adjunctive medications (aspirin, beta blockers, angiotensin converting enzyme inhibitors,

clopidogrel, and other appropriate drugs; and whether patients received the medication at the appropriate times); and education for patients in the hospital.

- Level 2: Appropriate adjunctive medications, PCI if indicated, and education for patients.

- Levels 3, 4, and 5: A QI system in the hospital to ensure appropriate classification, tests done for each level, and medications for each level. Education for patients.

The agencies to be involved are: ACC, AHA, ACEP, the Society for Academic Emergency Medicine, the American College of Physicians, the American Society of Internal Medicine, and the Society of Chest Pain Centers. A working group will use existing guidelines to develop a national plan in 18 months, with implementation 2 years later. Results will be measured by reports on the timeliness and appropriateness of therapy from the Joint Commission on Accreditation of Healthcare Organizations and CMS. State QI organizations have been established by Medicare to look at quality of patient care, and hospitals must report to these organizations. This effort will establish best practices.

Strategy 8: Establish a National Focus for EMS (Dr. Selker)

Dr. Selker reported on the group's action plans as follows:

Lead agency for EMS. A lead agency for EMS will be established nationally, with appropriate liaisons with other agencies. This is a long-term goal that will require national legislation. Funding should be a Government responsibility (tax supported) with State and Federal support for communities needing help. The standard will be articulated now, with encouragement for movement to achieve the goals.

Standards for systems and personnel. System and personnel standards will be set, with licensure of EMS personnel. Ideally, a lead agency will head this effort. Competency ascertainment should be articulated now to encourage the expansion of current NHTSA curricula standards to include competency. Systems standards should include the use of 12-lead ECG in 100 percent of ACLS in all States, with demonstrated and certified competency. This should be implemented in 2 years, and the measure of success will be rates of 12-lead ECG use as determined by a survey of States.

EMS research. Research on EMS recognition and care of ACS patients (as well as support of general EMS/ED research) will be supported by NIH, AHRQ, CDC, and HRSA. Research will be conducted now and remain continuous. The measure of success will be the amount of targeted research funding and the number of supported projects under way. Ideally, a lead agency will be in charge of this action, but meanwhile, system standards will be established by each State, led by EMS directors and professional organizations with national leadership from bodies such as NHAAP.

Dr. Christenson asked how this plan differs from NHTSA's efforts, which include a scope of practice, curricula, and national registry, with States licensing EMS personnel and local agencies handling licensing and QI. Dr. Selker replied that the breakout group supports NHTSA's EMS Education Agenda for the Future, but that it focuses more on QA norms rather

than competencies. He noted that in a trial in Massachusetts, it was apparent that paramedics needed more training. There is no measurement of how the prehospital 12-lead ECG is done in the field. National consensus standards for performance are needed for local jurisdictions to apply and measure under the oversight of medical directors.

Strategy 1: Multimodal, Long-Term, Public Education (Dr. Diane Carroll)

Dr. Carroll said that the strategy was to develop a multimodal, long-term, public education campaign using three action plans:

Celebrity spokespersons. Use celebrity spokespersons as role models to educate about ACS symptom recognition. A goal is to develop a marketing plan in 1 year, which would be modeled after the NCI's programs. The measure will be the number of patients with ACS who call 9–1–1.

Teachable moments. All patients with ACS symptoms who come into the ED or go to private health care providers will be given Act in Time to Heart Attack Signs materials to educate them on symptoms of ACS and the actions to take if they have these symptoms. The measure will be the number of patients with ACS symptoms who use 9–1–1 and the reduction in the number of patients who drive themselves to the ED.

Education for children and youth. Health education will be expanded for elementary and high school students. This will include teaching about healthy lifestyles and symptoms and signs of ACS. CPR and the use of AEDs will be taught in high school, with CPR certification and AED training becoming part of the requirement for graduation. For younger students, an ambulance will come to schools to teach about what EMS does. A Federal mandate should be developed to help promote this. Another suggestion is to use youth organizations such as Boy/Girl Scouts, Boys and Girls Clubs, and YMCA as a forum for CPR education. The timeframe for accomplishing this plan is 2008. Measures will include increases in the number of students with CPR certification and an increase in ambulance visits to schools. Dr. Carroll noted that CPR certification for high school students has been on the docket for many years but has never been funded.

Strategies 2 and 3: Alternatives to Traditional Entry to the EMS System and Alternative Models for EMS Response (Dr. Zalenski)

Dr. Zalenski said that his subgroup combined strategies 2 and 3 because both create alternative models for the patient and EMS.

Patient focus. The action focusing on patients will establish an alternative telephone number (e.g., 3–1–1) that patients can call if they are not sure if their symptoms are an emergency or if they need advice, without precipitating the typical full EMS response. The patients will make their own decision regarding which number to call, i.e., 9–1–1, or 3–1–1. EMS directors and EMS/firefighters will educate the public with the support of local government and State signoff. The pilot project will be completed in 2005–2006.

EMS focus. The action focusing on EMS will establish triage protocols in the system. Dispatchers will be trained to take two types of calls: 9–1–1 calls that may not need the typical

full response, and 3–1–1 calls that may need multiple levels of response. Levels of response include:

- A full response if the situation is judged to be an emergency.
- A paramedic house call with a chest pain mobile unit that provides standardized assessment.
- Advice/reassurance, with recommendations to call a physician or EMS transport.

A pilot project will be conducted in an EMS system as a research project, with the results of pre- and postanalysis determining the effect of the intervention. Measures will be:

- An increase in the number of patients with ACS symptoms who have ACS and who are transported by EMS (with either the full or intermediate response).
- Decreased use of the full lights and sirens response for patients without time-dependent conditions.
- Cost savings from the tiered response—the site visit and 3–1–1 might pay for itself in terms of decreased overutilization.

This intervention will be conducted by EMS medical directors and EMS/firefighters with local and State approval. The pilot project will be completed in 2005–2006.

Breakout Group B

Breakout group B selected strategies 1 (multimodal, long-term, public education), 3 (alternative models for EMS response), 4 (reduce the social cost of calling EMS), and 7 (education for medical providers about EMS capabilities and benefits) as their top four strategies. They were reported in the following order by spokespeople for each of the subgroups in breakout group B.

Strategy 1: Multimodal, Long-Term, Public Education (Ms. Bonifer-Tiedt)

Ms. Bonifer-Tiedt said that a decision was made to build on what we have—the Act in Time to Heart Attack Signs campaign.

- By July 2005, NHLBI, with guidance from the Education Subcommittee, will develop a written plan to evaluate the utilization and effectiveness of the Act in Time campaign, focusing on outcomes.
- By February 2006, the Science Base Subcommittee will evaluate the Act in Time message—with an emphasis on the sensitivity and specificity—and report to the Coordinating Committee. It will examine the effect of broadening the message related to symptoms but making it more specific in terms of audience.

- By October 2007, NHLBI, in cooperation with CDC, will use public health and marketing experts to design a comprehensive data-driven strategy to guide public information and interventions for ACS. Both traditional and nontraditional approaches will be considered.

The goal is to look at and employ different kinds of educational approaches.

Strategy 3: Alternative Models for EMS Response (Dr. Bass)

Dr. Bass said that the group felt that there was not enough time to address this topic directly. However, the group suggested that national evidence-based consensus guidelines for the dispatch, treatment, and disposition of patients with ACS symptoms be developed. These guidelines will consider alternatives to current practice and increase access of patients with ACS.

NHTSA, the lead agency for EMS, will pull together the national EMS associations and other interested parties to develop the guidelines. The effort will be funded by NHLBI.

This will be completed by October 2007. The measure will be a national survey (through the States) of the percent of jurisdictions that have partially or completely implemented these guidelines.

Strategy 4: Reduce the Social Cost of Calling EMS

Dr. Ferguson said that the group considered this a user-based (rather than a system-based) strategy. Its goal is to reduce the social stigma (rather than social cost) of calling EMS. This is primarily the user's perception of social stigma (e.g., embarrassment and cultural/language concerns).

The proposed intervention will recognize that user perception is related to age and culture and needs to be assessed on an individual community/group basis. This will be accomplished by developing an assessment plan focusing on age groups (in schools, workplaces, and senior centers) to determine which groups should be targeted by an educational effort.

NHAAP will develop the assessment tool/questionnaire along with expanded educational materials for groups found to most need education. Community EMS units will be asked to distribute surveys in their area. Following the assessment, groups that need education will be prioritized. The educational effort through the local EMS will provide training and education (including "train the trainers"). The educational materials will be developed by NHAAP.

The intervention will be evaluated by a survey of the targeted groups that received the education. EMS data on utilization (the ratio of individuals with ACS symptoms that called EMS pre- and post assessment and during the training period) also will be collected. Another possible measure is to compare the use of EMS versus other transport to the ED, but this may be beyond the scope of this strategy. However, ED involvement is needed to assess how many ACS patients call EMS. It would be useful to know the ED's perception of change in the ratio of EMS calls during and after the intervention period.

Another question is why people who use EMS versus other types of transport receive earlier treatment. Is it because the EMS calls the hospital ahead and transmits 12-lead ECG results, or because the EMS personnel themselves push the patient through the EMS? Is there a way that the ED can address better service for patients who are not transported by EMS?

The timeframe for the intervention is as follows: concurrence with the recommendations will be achieved at the next Coordinating Committee meeting (June 2005); review of educational materials will occur by the next fall meeting; distribution of assessment data and the educational materials will occur at the 2005 and 2006 fall meetings, with assessment of data to follow.

Strategy 7: Education for Medical Providers About EMS Capabilities and Benefits (Dr. MacLeod)

Dr. MacLeod reported that primary care providers who have better knowledge of EMS capabilities might be the best advocates for EMS. The group recommended two action steps:

- Develop an EMS capabilities and services template for PCPs. This will be developed under national leadership (e.g., fire chiefs, paramedics, and EMS providers) in 1 year. The assessment measure will be whether it was done.

- Disseminate the EMS capabilities campaign at the local level. This will be done by local EMS providers and perhaps local medical societies. Endorsement by organizations such as AMA, AHA, and ACC will make it easier to reach PCPs. This plan will be accomplished in 2 years, and the measure will be a survey of EMS services to see whether it was done.

SUMMARY/NEXT STEPS (Dr. MacLeod and Ms. Hand)

Dr. MacLeod and Ms. Hand thanked the breakout group facilitators and Ms. Michos for their contributions, and Ms. Hand presented certificates of appreciation to Dr. Braslow, Dr. Alonzo, Dr. MacLeod, Ms. Michos, Ms. Ackerman, and Ms. St. John.

Ms. Hand said that NHAAP will take the breakout groups' recommendations and consolidate them. The strategies identified might be attached to the EMS background papers, be placed on the NHAAP Web site, or be part of a journal article or a Government Printing Office publication. She encouraged members to talk to their organizations about the meeting and the recommendations. She also thanked the speakers as well as all the participants.

Business Announcements

Ms. Hand noted that the final report on the first 3 years of the Act in Time campaign has been sent to members. The report describes the materials and messages, and how NHAAP arrived at the symptom message and message to call 9–1–1. She asked members to provide final comments and/or approval on the paper on prehospital 12-lead ECG by the end of December.

Ms. Hand thanked the ACC for providing free copies of its heart attack guidelines in pocket form, and WomenHeart for providing copies of its "Red Book" and additional materials. She also thanked Ms. Henry and Mr. Schriever for their talks, which inspired the working

groups' recommendations. Ms. Hand asked Mr. Schriever to report what he is doing now with the Sudden Cardiac Arrest Survivor Network. (Ms. Henry had to leave the meeting early.)

Survivor Network Activities

Mr. Schriever thanked the Coordinating Committee for the opportunity to tell his story and for all the work members have done in the past years to save lives. He acknowledged Mr. Richard Brown, President of the National Center for Early Defibrillation's Sudden Cardiac Arrest Survivor Network, which was established 4 years ago to increase awareness of the importance of AEDs. A year ago, 42 survivors met in Washington, DC, and decided to form a survivors' network. A second conference was held 4 weeks ago to lobby on Capitol Hill. Mr. Schriever was among those survivors and spouses who met with Senator Ted Kennedy. The following day, the Food and Drug Administration approved over-the-counter sales of AEDs. Shortly after, Mr. Schriever received word that CMS approved the budget to cover implantable cardiac defibrillators for senior citizens in January 2005.

Mr. Schriever reported that a pilot program to teach the Heimlich maneuver, AED, CPR, and warning signs will be implemented shortly in a school in Somerset, MA, reaching 1,000 students and staff. This will be expanded to other schools after the pilot program. Massachusetts Governor Mitt Romney said that he will sign a bill to mandate that all high school students be certified in Heimlich, AED, and CPR before graduation. The States of Maine and Ohio have expressed interest in similar programs.

Mr. Schriever added that his organization would like to be part of NHAAP. Finally, he showed a video titled "I Survived Sudden Cardiac Arrest," which featured still photos of various sudden cardiac arrest survivors, with text indicating their ages and where their lives were saved.

ADJOURNMENT (Ms. Hand)

Ms. Hand thanked all participants for their input and devotion. She reminded them that the next meeting will be held June 6–7, 2005, and then adjourned the meeting.

National Heart Attack Alert Program

Executive Committee Meeting

October 25, 2004
Neuroscience Conference Center
Rockville, Maryland

NATIONAL HEART ATTACK ALERT PROGRAM
EXECUTIVE COMMITTEE MEETING

Meeting Summary
October 25, 2004

Subcommittee Members

James M. Atkins, M.D., F.A.C.C. (Chair)

Charles L. Curry, M.D.

Bruce MacLeod, M.D., F.A.C.E.P

Mary Beth Michos, R.N.

Joseph P. Ornato, M.D., F.A.C.P., F.A.C.C., F.A.C.E.P.

Harry P. Selker, M.D., M.S.P.H.

David E. Simmons, Jr., M.S.N., R.N., C.N.N.

Robert J. Zalenski, M.D., M.A.

NHLBI Staff

Mary M. Hand, M.S.P.H., R.N.

George Sopko, M.D.

WELCOME (Dr. James Atkins, Chair)

Dr. Atkins welcomed the group and listed the topics to be discussed.

DATE FOR THE NEXT COORDINATING COMMITTEE MEETING (Ms. Mary Hand)

Ms. Hand led the discussion of possible dates in June 2005 for the next meeting. The group decided on June 6–7 as a tentative date.

NEW MEMBER

Dr. Atkins reported that the Heart Rhythm Society has applied for membership on the National Heart Attack Alert Program (NHAAP) Coordinating Committee. The society focuses on issues such as indications for pacemakers and atrioventricular ablation. The committee voted unanimously to accept the society as a member.

PREHOSPITAL 12-LEAD ELECTROCARDIOGRAM (ECG) PAPER

The paper entitled "Prehospital 12-lead Electrocardiography—A Call for Implementation in Emergency Medical Service Systems Providing Advanced Life Support" was distributed to all

NHAAP member organizations to take to their review bodies in September. The paper is close to publication but questions remain about how to approve the paper as a Coordinating Committee and how to deal with editorial versus substantive comments. Ms. Hand sent an e-mail to the Coordinating Committee the week before the meeting asking for comments and has heard from a few members organizations; the others are at various stages of approval.

The paper's most important message is the need for 12-lead ECG by all emergency medical services (EMS) systems. Dr. Atkins noted that paramedic services with itemized bills have the 12-lead ECG, but fire services that do not bill need the paper for support. Dr. Harry Selker suggested adding standards for reading ECG results and support to fund training. Drs. Atkins and Selker both thought that this topic should be a focus of the NHAAP.

It was noted that the Access to Care Subcommittee prepared a paper about 10 years ago on equipping and staffing EMS systems, which addressed the need for prehospital 12-lead ECGs. This current, updated paper will provide policymakers with the guidance they need to make decisions.

It was noted that comments would be taken up to December 31. If there were substantive changes, members could e-mail their vote or submit a letter by January 15. Dr. George Sopko will assemble an independent group of external reviewers to review substantive comments and make decisions about issues with potential conflicts of interest (COI) if needed.

Ms. Hand noted that the National Heart, Lung and Blood Institute will be requiring COI disclosures for all writing groups in the future. The National Institutes of Health is reviewing its COI policies and procedures to ensure optimal standards of practice.

There was no formal working group for the 12-lead ECG paper, which was written by the Health Systems Subcommittee under the auspices of the Coordinating Committee and Dr. J. Lee Garvey's leadership. Formal COI statements will be needed for anyone who contributed to the paper, including Dr. Thomas Aufderheide who served as an external reviewer.

Dr. Atkins suggested that the Coordinating Committee require COI statements annually from all members. The American College of Cardiology and American Heart Association have been requiring COI disclosures for a long time.

SURVIVOR CARE WORKING GROUP PAPER

"Compassionate Care and Illness Prevention for Surviving Family Members of Victims of Unexpected Cardiac Death in the Community, Emergency Department, and Hospital" is the title of a paper written primarily by Drs. Robert Zalenski and Richard Gillum. The paper discusses compassionate disclosure of death by emergency care providers and the effects of bereavement on coronary health status. Dr. Zalenski would like the paper to be approved by the Coordinating Committee at its next meeting. Ms. Hand noted that the group was not currently ready to vote on the paper but could approve the draft and take comments until December 31. Editorial changes will be made and substantive comments will be submitted and approved by mail and e-mail vote.

The group voted to proceed with the paper and also to recommend bereavement training for prehospital providers. The Science Base Committee might recommend a research initiative.

BEST PRACTICES WORKING GROUP PAPER

The Best Practices Working Group (preliminary title) would update the "60 Minutes to Treatment" report in the context of three phases: patient, prehospital, and hospital. It would describe where the ACS field has been and where it needs to go, including the evidence base and tools for implementation. It was proposed that a working group of 8–10 persons would be convened next year. Recommendations for the chairs and panel members should be sent in writing to Ms. Hand.

ADJOURNMENT

Dr. Atkins thanked the members for their participation and adjourned the meeting.

National Heart Attack Alert Program

Attachments

October 25–26, 2004
Neuroscience Conference Center
Rockville, Maryland

ATTACHMENT A

LIST OF ATTENDEES

NATIONAL HEART ATTACK ALERT PROGRAM
COORDINATING COMMITTEE MEETING

Participants

October 25–26, 2004

Organization	Representative
American Academy of Insurance Medicine	Lawrence D. Jones, M.D.
American Academy of Physician Assistants	John McGinnity, M.S., P.A.-C
American Association for Clinical Chemistry, Inc.	Robert H. Christenson, Ph.D., D.A.B.C.C., F.A.C.B.
American Association of Critical Care Nurses	Diane L. Carroll, R.N., Ph.D.
American Association of Health Plans	Andrea G. Gelzer, M.D.
American Association of Occupational Health Nurses	Carol Cunningham Base, R.N., M.S., B.S.N., COHN-S
American College of Cardiology	James M. Atkins, M.D., F.A.C.C.
American College of Emergency Physicians	Stephen V. Cantrill, M.D., F.A.C.E.P.
American College of Occupational and Environmental Medicine	Emmett B. Ferguson, M.D., M.P.H.
America's Health Insurance Plans	Andrea G. Gelzer, M.D.
American Heart Association	Joseph P. Ornato, M.D., F.A.C.P., F.A.C.C., F.A.C.E.P.
American National Red Cross	Pat Bonifer-Tiedt, Sc.M., M.S.
American Nurses Association, Inc.	Christine M. Crumlish, Ph.D., R.N.
American Pharmacists Association	M. Ray Holt, Pharm.D.
American Public Health Association	Barbara Hatcher, Ph.D., R.N.
Association of Black Cardiologists	Gerald DeVaughn, M.D., F.A.C.C.
Centers for Medicare & Medicaid Services	Jay Merchant, M.H.A.

Department of Veterans Affairs	Robert L. Jesse, M.D., Ph.D.
Emergency Nurses Association	Julie Bracken, R.N., M.S., C.E.N., A.P.N.
Food and Drug Administration	Arthur A. Ciarkowski, M.S.E., M.B.A., M.P.A.
Health Resources and Services Administration	David B. Snyder, R.Ph., D.D.S.
International Association of Fire Chiefs	Mary Beth Michos, R.N.
International Association of Fire Fighters	Jonathan Moore, E.M.T.-P. (Substitute for Lori Morre, Dr.P.H., M.P.H., N.R.E.M.T.-P.)
National Association of EMS Physicians	Bruce MacLeod, M.D., F.A.C.E.P.
National Association of State Emergency Medical Services Directors	Karen Halupke, R.N., M.Ed.
National Black Nurses Association	David E. Simmons, Jr., M.S.N., R.N., C.N.N.
National Center for Health Statistics	Richard Gillum, M.D., F.A.C.C.
National Heart, Lung, and Blood Institute	Barbara Alving, M.D.
National Highway Traffic Safety Administration	Drew E. Dawson
National Medical Association	Charles L. Curry, M.D.
Society for Academic Emergency Medicine	Robert J. Zalenski, M.D., M.A.
Society of Chest Pain Centers and Providers	J. Lee Garvey, M.D.
Society of General Internal Medicine	Harry P. Selker, M.D., M.S.P.H.
Advisor	Angelo Alonzo, Ph.D.
Advisor	Alan Braslow, Ph.D.

Vacant

American College of Chest Physicians	David Gutterman, M.D.
Department of Defense, Health Affairs	Vacant

Absent

Agency for Healthcare Research and Quality	Daniel Stryer, M.D.
American College of Physicians	Robert A. McNutt, M.D., F.A.C.P.
American College of Preventive Medicine	Marise S. Gottlieb, M.D., M.P.H.
American Hospital Association	Nancy E. Foster
American Medical Association	Mark S. Antman, D.D.S., M.B.A.
Centers for Disease Control and Prevention	George A. Mensah, M.D.
National Association of Emergency Medical Technicians	Christopher Cebollero, M.S., N.R.E.M.T.-P.

Invited Speakers

Robert Bass, M.D.	Johns Hopkins University
Robert Giffin, Ph.D., M.A,	Institute of Medicine
Sharon Henry, R.D.	WomenHeart
Bob Schriever	National Center for Early Defibrillation Sudden Cardiac Arrest Survivor Network

Invited Facilitators

Dottie St. John

Kay Ackerman

National Institutes of Health and National Heart, Lung, and Blood Institute Staff

Patrice Desvigne-Nickens, M.D.

Mary M. Hand, M.S.P.H., R.N.

Christine Krutzsch, M.S.

Terry Long

Gregory J. Morosco, Ph.D., M.P.H.

Nancy J. Poole, M.B.A.

George Sopko, M.D.

Juliana Tu, M.S.

Guests

Anthony Anyanura, M.D.	Health Resources and Services Administration
Robert Cobb, Ph.D.	National Emergency Number Association
Blanca Fuertes, M.P.A.	
Jim Judge	American Red Cross
Kristi Savino	*Journal of the Emergency Medical Services*
Deanna Simmons, R.N.	National Black Nurses Association
Sandra Trinidad	American Public Health Association

Contract Staff (American Institutes for Research [AIR] and MasiMax Resources, Inc. [MasiMax])

Mark Adams, C.M.P. (MasiMax)

Jill K. Arvanitis, M.P.H., C.H.E.S. (AIR)

Judy Estrin, M.A. (AIR)

Sharon Haddock (MasiMax)

Pamela Murray (MasiMax)

ATTACHMENT B

COORDINATING COMMITTEE AGENDA

National Heart Attack Alert Program (NHAAP)
Coordinating Committee Meeting
National Heart, Lung, and Blood Institute

Neuroscience Conference Center
6001 Executive Boulevard
Rockville, MD

Monday, October 25, 2004

Agenda

NHAAP Coordinating Committee Business Meeting

8:30 a.m.–9:30 a.m.		**Rooms C/D**
	Welcome and Introductions	Dr. Barbara Alving
	Executive Committee Report	Dr. James Atkins
	Discussion and Vote on Program Paper: "Prehospital 12-Lead Electrocardiography—A Call for Implementation in EMS Systems Providing Advanced Life Support"	Dr. Alving
	Institute of Medicine Project—"The Future of Emergency Care in the United States Health System"	Dr. Robert Giffin
	Brief Updates from Organizations	
	National Highway Traffic Safety Administration	Mr. Drew Dawson
	• National Emergency Medical Services (EMS) Information System • National EMS Scope of Practice Model • Wireless Enhanced 9–1–1	
	American Association for Clinical Chemistry, Inc.	Dr. Rob Christenson
	• Beckman Conference on Biomarkers	
	Other	

Special Focus National Heart Attack Alert Program (NHAAP)
Coordinating Committee Meeting

Use of Emergency Medical Services (EMS) by Patients with
Acute Coronary Syndromes (ACS):
How Can We Do Better?

Neuroscience Conference Center
6001 Executive Boulevard
Rockville, MD

October 25–26, 2004

Background:

In support of the Health Systems Subcommittee current priority area to promote EMS systems utilization and optimization, the NHAAP Coordinating Committee is holding a special meeting for its member organizations and other stakeholders, to problem solve around issues related to underuse and optimal use of EMS for patients with symptoms of ACS, and to recommend new approaches, strategies, and associated action plans.

Meeting Goals are to:

1. Review what we know about barriers and facilitators to EMS use for patients with ACS symptoms, based on the current science.

2. Educate attendees about the benefits of 9–1–1/EMS use for people in their communities with ACS symptoms, within the context of an optimal recognition and response scenario.

3. Identify patient and system-related strategies for increasing the percent of patients with ACS being transported by EMS.

4. Establish an action plan for achieving the recommended strategies for increasing the percent of patients with ACS being transported by EMS, including buy-in of the stakeholders/audience.

5. Gain consensus for monitoring implementation and evaluation of the action plan. (NHAAP Coordinating Committee organization representatives will fill out a mini-contract of what each organization will do.)

Special Focus National Heart Attack Alert Program (NHAAP)
Coordinating Committee Meeting

Use of Emergency Medical Services (EMS) by Patients with Acute Coronary Syndromes (ACS): How Can We Do Better?

Neuroscience Conference Center
6001 Executive Boulevard
Rockville, MD 20852

October 25–26, 2004

October 25, 2004

Day 1: Morning

9:30 a.m.–12:30 p.m.	**Large Group Session**	**Rooms C/D**
9:30 a.m.	**Review of Meeting Agenda and Process**	Dr. Bruce MacLeod Ms. Mary Beth Michos
9:45 a.m.	**Using EMS for ACS: State of the Field**	Dr. James Atkins
10:05 a.m.	**Ideal Recognition and Response Scenario**	Dr. Joseph Ornato
10:20 a.m.	***Break***	
10:45 a.m.	**Current EMS Response: Configurations & Capabilities**	Dr. Robert Bass
11:15 a.m.	**Calling EMS for ACS Symptoms: Patient Perspectives**	
	Patient Testimonies	Ms. Sharon Henry Mr. Robert Schriever
	Social Psychology of the Patient/Situation	Dr. Angelo Alonzo
Noon	**Keep in Mind: Act in Time to Heart Attack Signs**	Ms. Terry Long
12:15 p.m.	**Creating the Future (How We Get to Where We Want to Be)**	Dr. MacLeod Ms. Michos

Day 1: Afternoon

12:30 p.m.–1:30 p.m.	***Lunch***	NSC Cafeteria
1:30 p.m.–3:45 p.m.	**Breakout Groups** Breakout Groups (A and B) to Each Address: • Identify strategies for the question, "How do we get an increase in the percent of patients with ACS being transported by the EMS system?" —Round I: Patient Issues —Round II: System Issues	Rooms A/A1 and B/B1 (as assigned)
3:45 p.m.	***Break***	
4:15 p.m.–5:00 p.m.	**Large Group Session**	**Rooms C/D**
	Report of Breakout Groups:	Dr. MacLeod/Ms. Michos
	• Group A Report:	Dr. Angelo Alonzo
	• Group B Report:	Dr. Allan Braslow

October 26, 2004

Day 2: Morning

8:30 a.m.–9:15 a.m.	**Large Group Session**	**Rooms C/D**
	Large Group Session to Continue Report on Breakout Groups	Dr. MacLeod/Ms. Michos
	Recommended Strategies To Promote EMS Utilization: Review of Top Line Recommendations From Breakout Groups I and II	
9:30 a.m.–11:30 a.m.	**Breakout Groups (A and B)** Breakout Groups To Address Two Additional Topics: • How do we achieve these strategies? What actions are needed to be taken and by whom; when and how can we measure them? • Given what has been discussed, how much of an incremental change can we expect if the strategies are implemented?	**Rooms A/A1 and B/B1 (as assigned)**

11:30 a.m.	***Break***	
11:45 a.m.–1:15 p.m.	**Large Group Session**	**Rooms C/D**
	Report of Breakout Groups:	
	• Group A Report	Dr. Alonzo
	• Group B Report	Dr. Braslow
1:05 p.m.	**Summary/Next Steps**	Dr. MacLeod Ms. Michos
1:15 p.m.	**Adjournment**	Ms. Mary Hand

ATTACHMENT C

DR. GIFFIN'S PRESENTATION SLIDES

Future of Emergency Care in the U.S. Health System

NIH Heart Attack Alert Program
October 25, 2004
Bob Giffin, Project Co-Director

INSTITUTE OF MEDICINE
OF THE NATIONAL ACADEMIES

Highlights of Previous IOM Work Related to Emergency Care

- Accidental Death and Disability: The Neglected Disease of Modern Society (1966)
- Injury in America: A Continuing Public Health Problem (1985)
- Emergency Medical Services for Children (1993)
- Primary Care: America's Health in a New Era (1996)
- Reducing the Burden of Injury: Advancing Prevention and Treatment (1998)
- America's Health Care Safety Net: Intact but Endangered (2000)
- To Err Is Human: Building a Safer Health System (2000)
- Crossing the Quality Chasm: A New Health System for the 21st Century (2001)
- The Future of the Public's Health in the 21st Century (2002)
- Preparing for Terrorism: Tools for Evaluating the Metropolitan Medical Response Program (2002)
- A Shared Destiny: Community Effects of Uninsurance (2003)

INSTITUTE OF MEDICINE
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Future of Emergency Care in the U.S. Health System

Project Sponsors

Support for this project is provided by:

- Josiah Macy, Jr. Foundation
- Agency for Healthcare Research and Quality (AHRQ)
- Health Resources and Services Administration (HRSA)
- National Highway Traffic Safety Administration (NHTSA)
- Centers for Disease Control and Prevention (CDC)

INSTITUTE OF MEDICINE
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Future of Emergency Care in the U.S. Health System

Statement of Task (in brief)

- The objectives of this study are to:
  (1) examine the emergency care system in the U.S.;
  (2) explore its strengths, limitations, and future challenges;
  (3) describe a desired vision of the emergency care system; and
  (4) recommend strategies required to achieve that vision.
- The study will also examine the unique challenges associated with the **provision of emergency services to children and adolescents**, and evaluate progress since the publication of the IOM's 1993 report, *Emergency Medical Services for Children*
- In addition, the study will examine **prehospital EMS** and include an assessment of the current organization, delivery, and financing of EMS services and systems, and assess progress toward the *EMS Agenda for the Future*

INSTITUTE OF MEDICINE
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Future of Emergency Care in the U.S. Health System

Project Structure

- 26 member **Main committee**
- 11 member **Prehospital EMS subcommittee**, including six from the main committee
- 11 member **Pediatric subcommittee**, including five from the main committee
- 13 member **Hospital-based emergency care subcommittee**, including eight from the main committee.

Future of Emergency Care in the U.S. Health System

Committee Roster

Gail L. Warden, M.H.A., F.A.C.H.E. ***(Chair)***
President Emeritus, Henry Ford Health System

Stuart H. Altman, Ph.D.
Brandeis University

Brent R. Asplin, M.D., M.P.H., F.A.C.E.P.
University of Minnesota and Regions Hospital

Thomas F. Babor, Ph.D., M.P.H.
University of Connecticut Health Center

Robert R. Bass, M.D., F.A.C.E.P.
Maryland Institute for Emergency Medical Services

Benjamin K. Chu, M.D., M.P.H.
New York City Health and Hospitals Corporation

A. Brent Eastman, M.D., F.A.C.S.
Scripps Health and University of California San Diego

George L. Foltin, M.D., F.A.A.P., F.A.C.E.P.
New York University School of Medicine

Shirley Gamble, MBA
Consultant

Darrell Gaskin, Ph.D., M.S.
Johns Hopkins University

Robert C. Gates, M.P.A.
Orange County Health Care Agency

Marianne Gausche-Hill, M.D., F.A.C.E.P., F.A.A.P.
Harbor-UCLA Medical Center

John D. Halamka, M.D.
Harvard Medical School and CareGroup Health System

Mary M. Jagim, R.N., B.S.N., C.E.N.
MeritCare Hospital

Arthur L. Kellermann, M.D., M.P.H.
Emory University School of Medicine

Future of Emergency Care in the U.S. Health System
Committee Roster

William N. Kelley, M.D.
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Peter M. Layde, M.D., M.Sc.
Medical College of Wisconsin

Eugene Litvak, Ph.D.
Boston University Health Policy Institute

Henri R. Manasse, Jr., Ph.D., Sc.D.
American Society of Health-System Pharmacists

Richard A. Orr, M.D.
University of Pittsburgh School of Medicine

Jerry L. Overton, M.A.
Richmond Ambulance Authority

John E. Prescott, M.D.
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Rosalyn Baker	Kaye Bender, PhD, RN	Stuart Altman, PhD		
Mary Fallat, MD				

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Project Timetable

2004

February 2-4	Kickoff Meeting
June 9-10	PEDS Subcommittee meeting
June 10-11	EMS Subcommittee meeting
June 24	Hospital-Based Subcommittee meeting
June 25	Main Committee meeting
September 20	EMS Subcommittee meeting
September 21	PEDS Subcommittee meeting
October 4	Hospital-Based Subcommittee meeting
October 5	Main Committee

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Project Timetable (cont.)

2005

March 2-4	Combined Main and Subcommittee Meetings (Los Angeles)
May 5-6	Main Committee
June 23-24	Hospital-Based Subcommittee meeting
September 22-23	EMS Subcommittee meeting
October 20-21	PEDS Subcommittee meeting
April 2006	Final Report Release

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Future of Emergency Care in the U.S. Health System

Information Gathering

- Commissioned papers
- Survey research
- Expert testimony
- Literature review & data synthesis
- Site visits
- Professional societies and associations
- Sponsor/governmental resources

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Commissioned Paper Topics

- The Role of the Emergency Department in the Health Care Delivery System
- Patient Safety and Quality of Care in Emergency Services
- Patient Flow in Hospital-Based Emergency Services
- Models of Organization, Delivery, and Planning for EMS and Trauma Systems
- Information Technology in Emergency Care
- Emergency Care in Rural America
- The Emergency Care Workforce
- The Financing of EMS and Hospital-Based Emergency Services
- The Impact New Medical Technologies on Emergency Care
- Mental Health and Substance Abuse in the Emergent Care Setting

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Future of Emergency Care in the U.S. Health System
How you can become involved . . .

- Visit the project website – http://www.iom.edu/emergencycare
- Sign up for the listserv (via the website) for regular e-mail updates
- Attend open sessions of Los Angeles meeting (agendas will be posted on website at least 10 business days in advance)
- Submit comments, background material, and/or data for the committee and subcommittees to consider (via e-mail or hard copy to staff)

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Future of Emergency Care in the U.S. Health System
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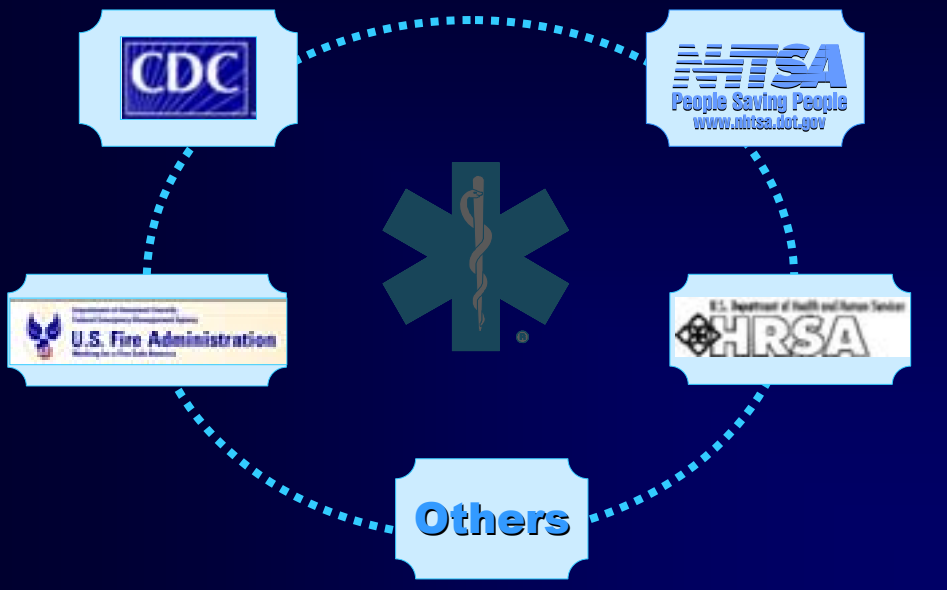
ATTACHMENT D

MR. DAWSON'S PRESENTATION SLIDES

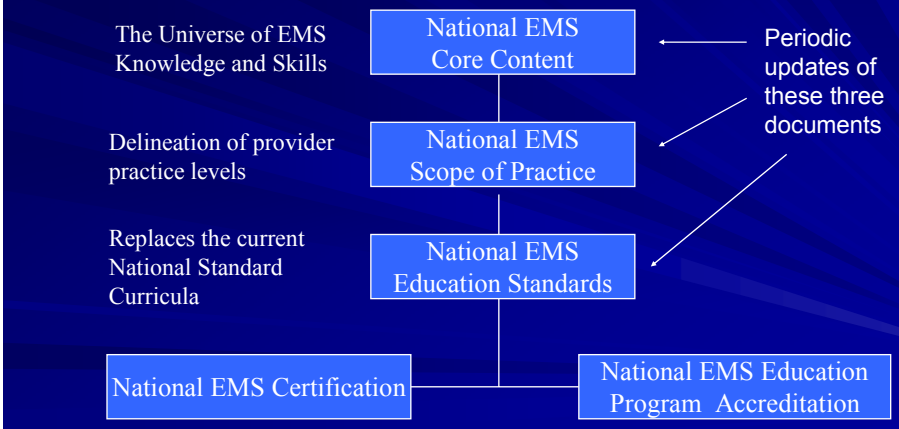
Federal Emergency Medical Services

Drew E. Dawson
Chief
NHTSA EMS Division

Federal EMS Program Coordination



The EMS Education Agenda for the Future: A Systems Approach



A single agency for each function- Standard exam, minimum competence, consumer protection

What does a ***Scope of Practice*** mean?

- **Scope of Practice** describes the legally authorized range of skills that a health professional can perform
- Scope of Practice is the foundation for state licensure
- Scope of Practice is determined by state law and administrative rules
- It establishes:
  - Minimum entry level requirements for each level of EMS provider
  - The outside limits of what every provider is allowed to do
- The Scope of Practice does not automatically authorize every provider to do every skill
  - This is a role for medical direction, protocols, and local system operations

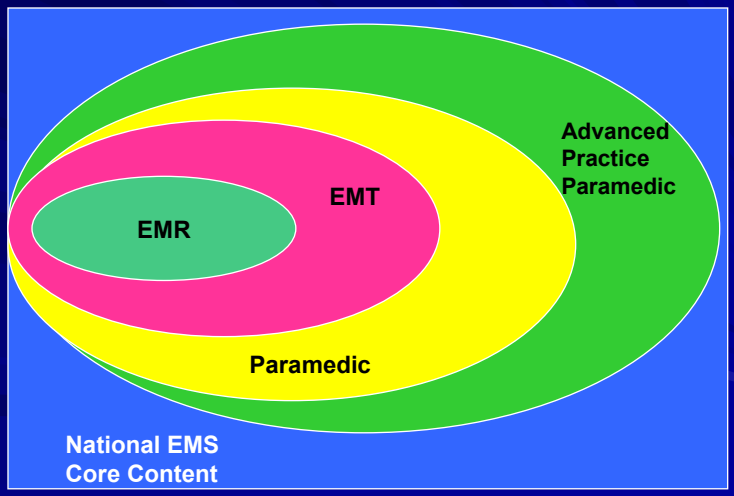
The National EMS Scope of Practice Model

The next step in implementing the *EMS Agenda for the Future: A Systems Approach*

EMS Education Agenda for the Future: A Systems Approach

- **National EMS Scope of Practice Model**
  - **Levels of EMS providers**
    - **Emergency Medical Responders**
    - **Emergency Medical Technician**
    - **Paramedic**
    - **Advanced Practice Paramedic**
  - **Review and comment**
  - **http://www.emsscopeofpractice.org/**

The proposed EMS Scope of Practice Model-



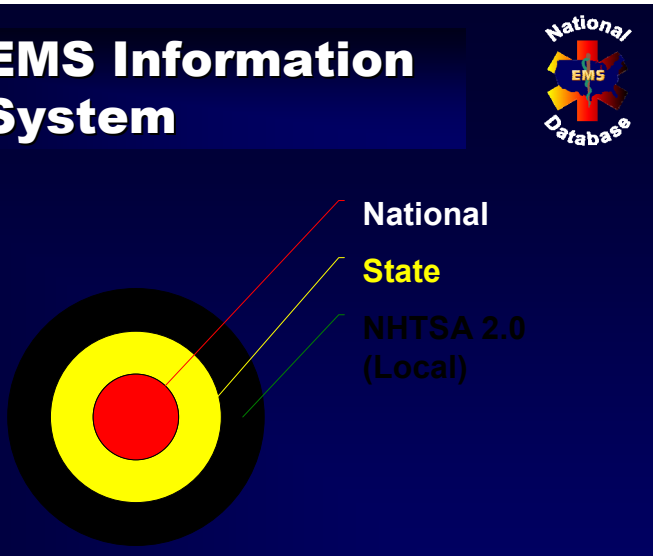
We are at the beginning, not the end of the process-

- The first draft is available for public review and comment through January 30, 2005
- All input will be considered and help shape the final product
- A national review team will finalize the document in 2005

Work in Progress

National EMS Information System (NEMSIS)

National EMS Information System

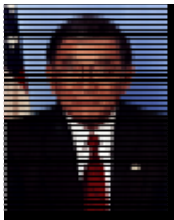


NEMSIS: National EMS Information System

- National EMS Data Set and Data Dictionary
- Memorandum of Understanding
  - 48 states and territories
- NHSTA – EMSC - CDC
  - Continuing to meet with federal partners – future funding and governance
- www.nemsis.org

Wireless Enhanced 9-1-1

Working Together For
Faster Incident Detection
& Notification



Wireless E9-1-1
Stakeholder Leadership

"When someone makes a call to 9-1-1 they expect to get help right away. We cannot, and will not, accept a system where callers cannot be located."

"We have the technology to solve the problem. All we need is the resolve and the commitment to make it happen."

– Secretary of Transportation **Norman Y. Mineta**

April 8, 2002

Wireless Enhanced 9-1-1

- **What it is it?**
- **DOT Activities**
- **Pending Legislation**
- **Next Generation 9-1-1**

Faster Incident Detection and Notification
Wireless E9-1-1

DOT Wireless
E 9-1-1 Initiative

- Stakeholder Leadership
- Technical Assistance

Wireless E9-1-1
Technical Assistance

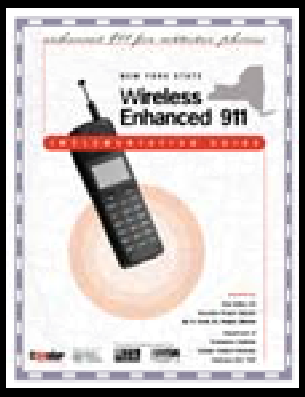
National Emergency Number Association

National Emergency Number Association (NENA) Contract

- NENA/DOT Clearinghouse
- Wireless Deployment Profile and Map
- Project Partners Include
  - Association of Public-Safety Communications Officials (APCO)
  - National Association of State 9-1-1 Administrators (NASNA)

Wireless E9-1-1
Technical Assistance

New York State
Emergency
Call Locator Partnership

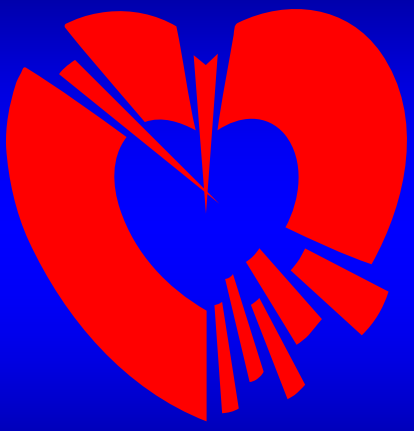


- Implementation Guide
- Lessons Learned
- Technical Assistance

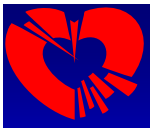
NHTSA
People Saving People
www.nhtsa.gov

ATTACHMENT E

DR. MACLEOD'S AND MS. MICHOS'S PRESENTATION SLIDES



NHAAP Coordinating Committee Special Focus Meeting on EMS Use by ACS Patients: October 25-26, 2004



Special Focus on EMS for ACS

- What led to focus on EMS use in ACS
- Importance of issue to our health care system and resource utilization
- Personal stories of Committee members
- Opportunity to discuss in a coordinated fashion among all Coordinating Committee organizations and key other groups/people

Special Focus on EMS for ACS

- What do we want to get out of the meeting?
- What do we expect from the Coordinating Committee organizations?

Healthy People 2010 Objectives

- Increase the proportion of adults aged 20 years and older who are aware of the early warning symptoms and signs of a heart attack **and the importance of accessing rapid emergency care by calling 9-1-1**

Use of EMS for ACS Patients: How Can We Do Better? Meeting Goals

- To review what we know about barriers and facilitators to EMS use for patients with ACS symptoms, based on current science (described in background paper)
- To educate attendees about the benefits of 9-1-1/EMS use for people with ACS symptoms, within the context of an optimal recognition and response scenario

Use of EMS for ACS Patients: How Can We Do Better? Meeting Goals (cont.)

- To develop patient and system-related strategies for increasing the percent of patients with ACS being transported by EMS
- To establish an action plan for achieving the recommended strategies for increasing the percent of patients with ACS being transported by EMS
- To gain consensus for measuring implementation of the action plan

Agenda Overview

Day One: Morning:

- Large group session: Speakers on EMS background and patient spokespersons
- Lunch: 12:30-1:30 p.m.
- Group assignments:

  Group A: Room A:

  Dr. Angelo Alonzo/Ms. Kay Ackerman

  Group B: Room B:

  Dr. Allan Braslow/Ms. Dottie St. John

Agenda Overview

Day One: Afternoon: Format

- Breakout groups: 1:30 p.m.-3:45 p.m.

  Develop strategies for: **"How do we get an increase in the percent of patients with ACS being transported by the EMS system?"**
- Break: 3:45 p.m.
- Large group session/report back of breakout groups: 4:15 p.m-5:00 p.m.

Agenda Overview

Day Two: Morning

Format: Breakout Groups

- Developing an Action Plan for the Identified Strategies for Where We Want to Be
- Consensus on the Monitoring and Evaluation of the Action Plan

Agenda Overview

Day Two: Format:

- Large group session: 8:30 a.m.-9:15 a.m. Presentations from Breakout Groups
- Break out groups: 9:30 a.m.-11:30 a.m.
  - **How do we implement strategies**
  - **What are the measures of success for each strategy**
  - **How much can we achieve**
- Break: 11:30 a.m.
- Large Group Session: 11:45 .m.-1:15 p.m.
  - Report back of break out groups
  - Summary/next steps

Use of EMS for ACS

- Questions?

REACT: Lessons for Communities: Messages

Less knowledge of benefits of EMS

- **Average use of 9-1-1 at baseline was only 33%**

ATTACHMENT F

DR. ATKINS'S PRESENTATION SLIDES

James Atkins, M.D.
National Heart Attack Alert Program
Coordinating Committee
October 25, 2004

Using Emergency Medical Services for Acute Coronary Syndrome Symptoms: State of the Field

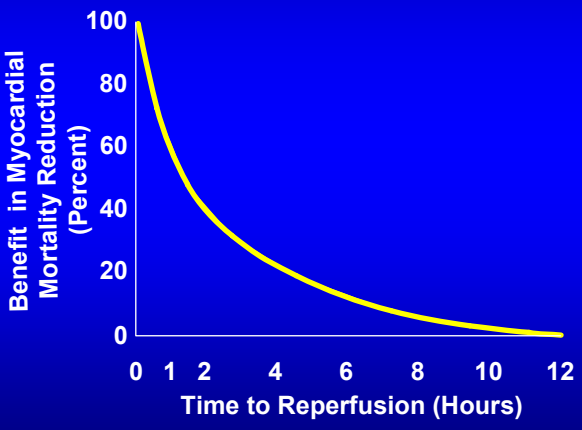
Overview of EMS Use by Patients with Acute Coronary Syndromes

- 1.1 million Americans have an acute myocardial infarction (MI)
- 515,000 deaths—half occur in the community
- Acute coronary syndromes (ACS)—first used in 1996 ACC/AHA MI Guidelines
  - ST-elevation MI (STEMI)
  - Non-ST elevation MI—unstable angina/non-ST-elevation MI (UA/NSTEMI)

Overview of EMS Use by ACS Patients

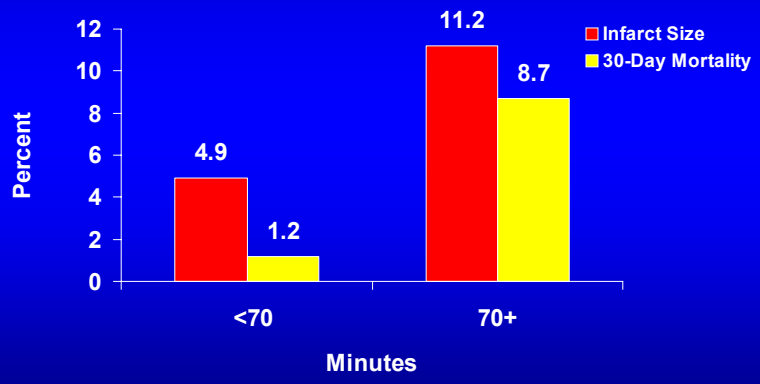
- Reperfusion (artery-opening) therapy revolutionized MI patient care creating a new paradigm of interrupting the acute event to minimize muscle damage
- "Time is muscle"—Time turned out to be an important adjunct to treatment effectiveness
  - Lower mortality
  - Less muscle damage

Time to Reperfusion versus Degree of Benefit



Source: National Heart Attack Alert Program, 60 Minutes to Treatment Working Group, 1994

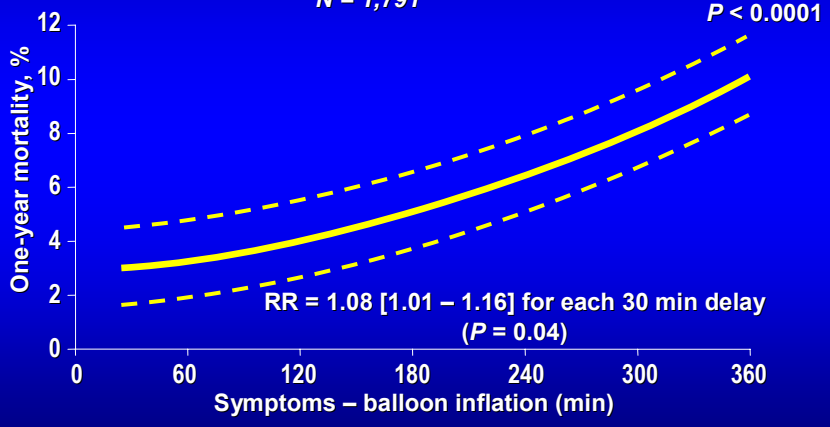
Myocardial Infarction, Triage, and Intervention (MITI) Trial: 30-Day Mortality Benefits



Source: Every and Weaver, 1995

Time-Delay to Treatment and Mortality in Primary Angioplasty for Acute MI: Every Minute Delay Counts

6 RCTs of 1° PCI by Zwolle Group 1994 – 2001
N = 1,791



DeLuca, Suryapranata, Ottervanger, Antman Circ 109:1223, 2004

Overview of EMS Use by ACS Patients

Given the continued importance of time to treatment for acute MI, patient/bystander, health care provider, transport, and hospital-associated delays need to continue to be addressed.

Overview of EMS Use by ACS Patients

- EMS system provides vital link between patient and hospital
- Current NHAAP message is to call 9-1-1 for 5 minutes of ACS symptoms
- NHAAP is in the business of science-based education
- Will review evidence supporting use of EMS by patients with ACS symptoms

Overview of EMS Use by ACS Patients

Will describe:

- Benefits of EMS use for ACS patients
- Rates of EMS use by ACS patients
- Factors associated with EMS use in ACS
- Interventions to increase EMS use for patients with ACS symptoms

Benefits of EMS Use for ACS Patients

- Significant association between arrival at the ED by ambulance and earlier reperfusion therapy:
  - Canto et al., 2002—NRMI, 772,586 MI patients from 1994-1998
  - Patients who arrived by ambulance
    - Door to lytic Rx: 12.1 min. faster
    - Door to angioplasty: 31.2 minutes faster

Benefits of EMS Use for ACS Patients

- Earlier reperfusion treatment (cont.)
  - Lambrew et al. (1997): NRMI 1 Time-to-Thrombolysis Substudy: took 2x longer for patients not arriving by ambulance to be seen by MD in ED
  - Swor et al. (1994): Patients arriving at ED by ambulance vs. other mode:
    - Time to ECG 12.9 min. vs. 20.8 min.
    - Time to thrombolytic therapy 56 min. vs. 78 min.

Benefits of EMS Use for ACS Patients

- Earlier reperfusion treatment (cont.)
  - Hedges et al. (1998): REACT paper:

    Rate of reperfusion within 6 hrs greater for patients MI patients transported via EMS (36% vs. 24%)
  - Hutchings et al. (2004): REACT paper:

    "Door to needle" time for patients transported by EMS vs. private transportation: 32 min. vs. 49 min.

Other Benefits of EMS Use for ACS Patients

- Emergency medical dispatchers can provide prearrival instructions
- EMS provider evaluation/treatment
  - Targeted medical history
  - Treatment—oxygen, aspirin, CPR, defibrillation
  - Prehospital 12-lead ECG (↓'s time to treatment)
  - Direct triage of patients needing emergency angioplasty (where prehospital protocols exist)

Rates of EMS Use by Chest Pain Patients

- 1989-2000 rates of EMS use by patients with chest pain symptoms:

  10-59%
- Regional variations, e.g., Pacific Northwest: 50-60 % (Meischke et al., 1997)

Rates of EMS Use by Chest Pain Patients

Brown et al., 2000: REACT survey:

- 89% of community members (phone survey) said they would call 9-1-1 if they witnessed a cardiac event.

But, of those REACT patients surveyed who presented to a hospital with chest pain:

- 23% used EMS
- 60% were driven by someone else
- 16% drove themselves to the hospital

Brown et al. *Circulation* 2000;102:173-178

Factors Associated with EMS Use by Patients with ACS Symptoms

- Demographic factors
- Past medical history factors
- Physician factors
- Patient knowledge/perception factors (Dr. Alonzo will address)
- Economic factors

Factors Associated with EMS Use by Patients with ACS Symptoms

Demographic Factors:

- Older age (Brown et al., 2000; Picken et al., 1998; Meischke et al., 1995)
- Living alone (Brown et al., 2000; Picken et al., 1998)
- White ethnicity (Brown et al., 2000)
- Education (Meischke et al., 1995)
- Being in the presence of others (Meischke et al., 1995)

Factors Associated with EMS Use by Patients with ACS

Past Medical History Factors:

- Previous MI (Becker et al., 1996)
- Congestive heart failure (Becker et al., 1996)
- Angina (Becker et al., 1996; Meischke et al., 1995)
- Hypertension (Becker et al., 1996)
- Diabetes (Picken et al., 1998)

Factors Associated with EMS Use by Patients with ACS

Past Medical History Factors (cont.):

- Greater incidence of acute MI (Becker et al., 1996
- ↑'d Severity of acute cardiac symptoms (Picken et al., 1998; Meischke et al., 1995
- REACT: Greater ↑'s in EMS use in patients with chronic or other cardiac diagnoses; retirees; those with SBP ≤160 mmHg
- But Picken et al., 1998: Patients with angina, nonischemic cardiac disease, noncardiac disease had lower rates of use

Factors Associated with EMS Use by Patients with ACS

Physician Factors:

- Communicating with a doctor before going to the hospital decreased EMS use (Brown et al., 2000; Schneider et al., 1998)
- 83% of patients who spoke with a physician and did not use EMS transport were later admitted to the hospital (Brown et al., 2000)
- A substantial proportion of providers preferred that their patients call them before calling 9-1-1 ("I know my patients.") (Zapka et al., 1999)

Factors Associated with EMS Use by Patients with ACS

Physician Perspectives: Why Patients Do Not Call 9-1-1 (Zapka et al., 1999)

- Embarrassment and privacy issues
- Fear of upsetting other family members
- Patient understanding of symptoms and heart attack
  - Don't recognize symptoms or don't feel bad enough to call
- Patients may not be taken to the hospital of their choice

Factors Associated with EMS Use by Patients with ACS

Physician Perspectives: Why Patients Do Not Call 9-1-1 (cont.)

- Patient perceptions about EMS and its appropriate use:
  - For dire emergencies only
  - EMS a system for poor people in Southeast
  - Lack of knowledge about what prehospital providers can do
  - Availability of someone to drive patient to the hospital
  - Short or long distances to the hospital
- Cost generally not considered a barrier

Factors Associated with EMS Use by Patients with ACS

Economic Factors (Insurance):

- NRMI 2: MI patients with HMO insurance, the uninsured, Medicaid patients—more likely to use EMS than those with commercial insurance (Canto et al., 2002)
- Soumerai et al., 1999: Elderly HMO patients in MN more likely to use EMS than FFS
- REACT focus groups: reported cost not a barrier to calling

Factors Associated with EMS Use by Patients with ACS

Economic Factors (Insurance) (cont.)

- Prepayment systems: (Siepmann et al., 2000)
  - Prepayment not associated with increased EMS use in overall sample
  - Low income patients more 2.6 times more likely to use EMS when a prepayment system was available
- King County, Washington
  - EMS free of charge
  - ~60% of acute MI patients call 9-1-1 for ACS symptoms

Factors Associated with EMS Use by Patients with ACS

Economic Factors (Insurance) (cont.):

- 15 health insurance plans' member instruction materials and definition of a heart attack and specific instructions:
  - Definition of chest pain as an emergency-40%
  - Calling 9-1-1/going to the ED as instructions-67%
    - 27% provided no options for calling 9-1-1 or seeking ED care
  - Cited higher costs for ED care—20%
  - Cited claims for non-emergencies would be denied-11%

Interventions to Increase EMS Use for ACS

- Efforts to date have been modestly successful
- Most interventions have focused on reducing prehospital delay time
- In general it has been more difficult to reduce delay time than to increase EMS use

Interventions to Increase EMS Use for ACS

Three randomized trials have been conducted in the last decade that have shown increased 9-1-1 use for ACS:

- "The Call Fast, Call 911 Campaign"
- Rapid Early Action for Coronary Treatment (REACT)
- "A Heart Attack Survival Kit"

Interventions to Increase EMS Use for ACS

"The Call Fast, Call 911 Campaign"

- Community-wide intervention conducted in King County, Washington
- Goal: reduce prehospital delay and increase use of EMS for ACS
- 6-week mass media campaign followed by a year-long direct mail campaign

Interventions to Increase EMS Use for ACS

"The Call Fast, Call 911 Campaign"--Results:

- No change in delay time
- Media campaign resulted in an ↑'d number of 9-1-1 calls for chest pain
- Direct mail intervention showed a specific effect for subgroups:
  - Patients with a hx of acute MI who had an acute MI during the study period: 18% greater proportion of EMS use in the intervention vs. control group
  - ↑'d effect among patients who received emotional and social messages throughout the intervention

Interventions to Increase EMS Use for ACS

Rapid Early Action for Coronary Treatment (REACT)

- Randomized controlled intervention trial in 20 communities (10 intervention and 10 control)
- Goal: Reduce prehospital delay
- 18 month intervention: public education; community organization; patient and provider education

Interventions to Increase EMS Use for ACS

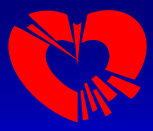
Rapid Early Action for Coronary Treatment (REACT): Results

- No significant decrease in delay time
- 20% difference in EMS use between intervention and control towns
- EMS use greater (i.e., 34%) among patients who were admitted and discharged with cardiac-related diagnoses in the intervention vs. the control communities

Interventions to Increase EMS Use for ACS

"A Heart Attack Survival Kit"

- Randomized controlled community-based trial of ~24,000 seniors in King County, Washington
- Randomized to receive either:
  - In-person visit from a fire fighter to discuss how to respond to heart attack symptoms (50%) *or* educational materials (kit) on doorknob (50%)
  - Another 24,000 served as controls



Interventions to Increase EMS Use for ACS

"A Heart Attack Survival Kit": Preliminary Results

- 1st yr after intervention--Seniors who received intervention (visit from fire fighter+kit) called EMS significantly more often than control group
- 2nd yr. Post intervention-results not statistically significant but trending in that direction
- Combined 2 yrs—statistically significant effect on calling behavior in intervention group

ATTACHMENT G

DR. ORNATO'S PRESENTATION SLIDES

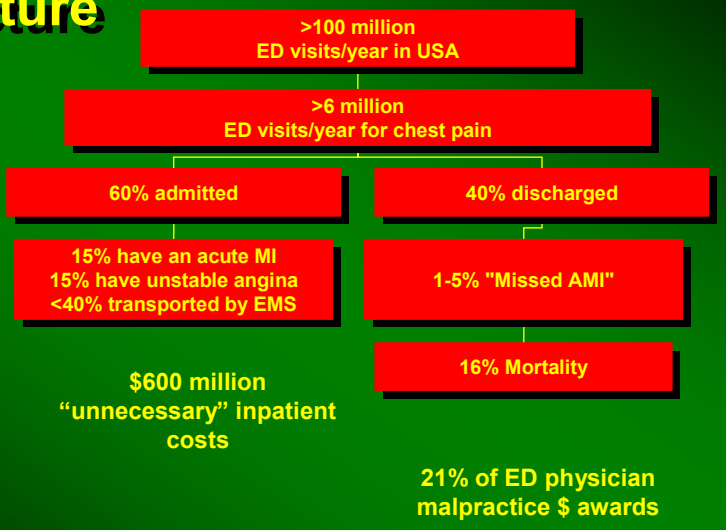
Optimal EMS Response to Evaluating and Treating Potential ACS Patients

Joseph P. Ornato, MD, FACP, FACC, FACEP
Professor & Chairman, Department of Emergency Medicine
Virginia Commonwealth University / Medical College of Virginia
Medical Director, Richmond Ambulance Authority
Richmond, VA

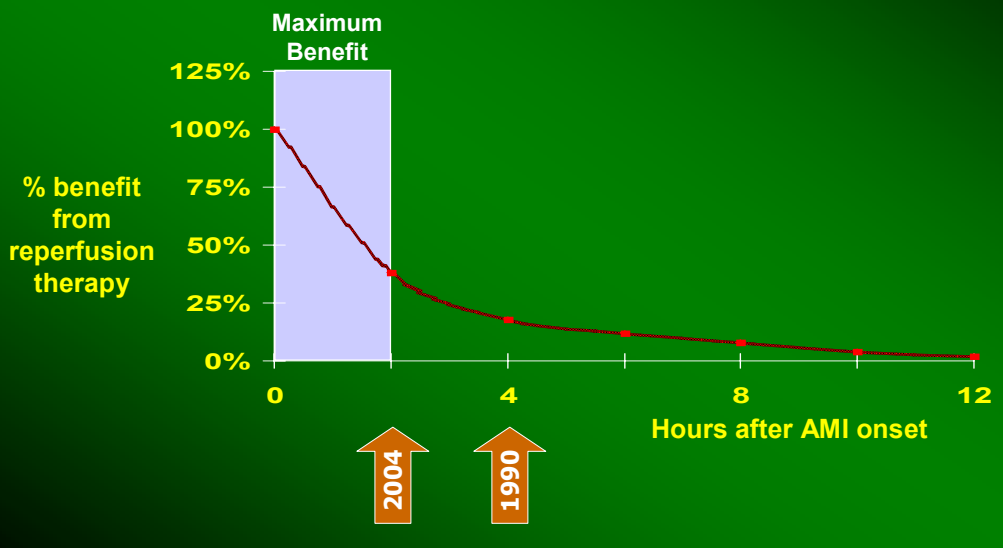
Objectives

- Demonstrate how our current EMS systems are not configured to best support the needs of chest pain patients
- Describe a potential paradigm shift for shortening the time to treatment in chest pain patients, especially those with an acute coronary syndrome

Chest Pain: The Big Picture



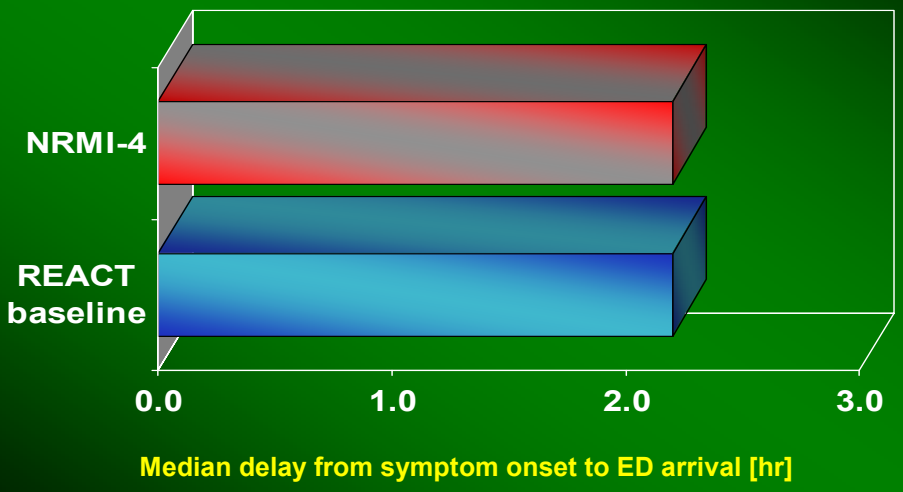
Time from AMI Symptom Onset to Fibrinolysis or PCI vs. Benefit



NHAAP Acute MI Delays

- Phase I - Patient/Bystander Recognition
- Phase II - Pre-hospital Actions
- Phase III - Emergency Department Actions

Acute MI Patient Delay



Rapid Early Action for Coronary Treatment (REACT)

Luepker RV et al. JAMA 2000; 284:60-7

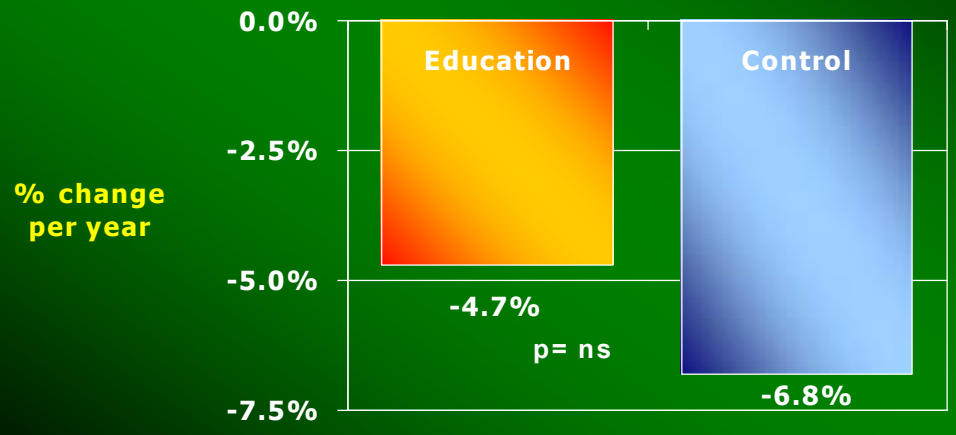
- Chest pressure, squeezing or pain
- Shortness of breath
- Accompanying discomfort in the jaw, neck, arms, shoulder, or back
- Nausea, sweating, feeling weak or lightheaded

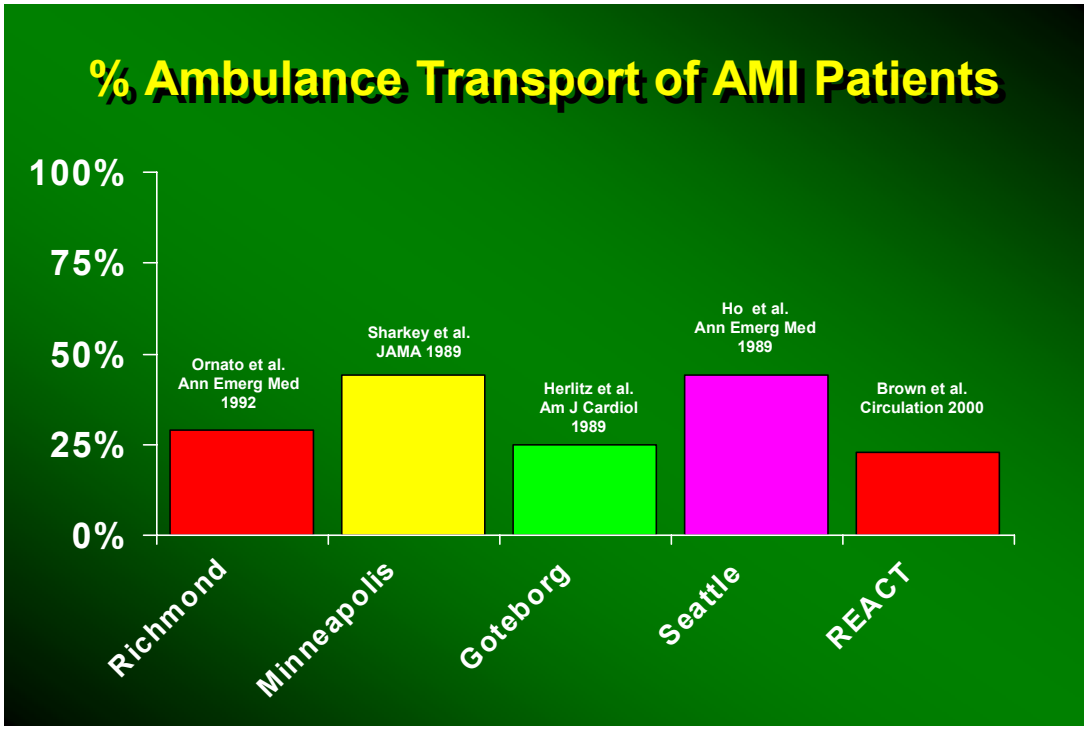
CALL FAST

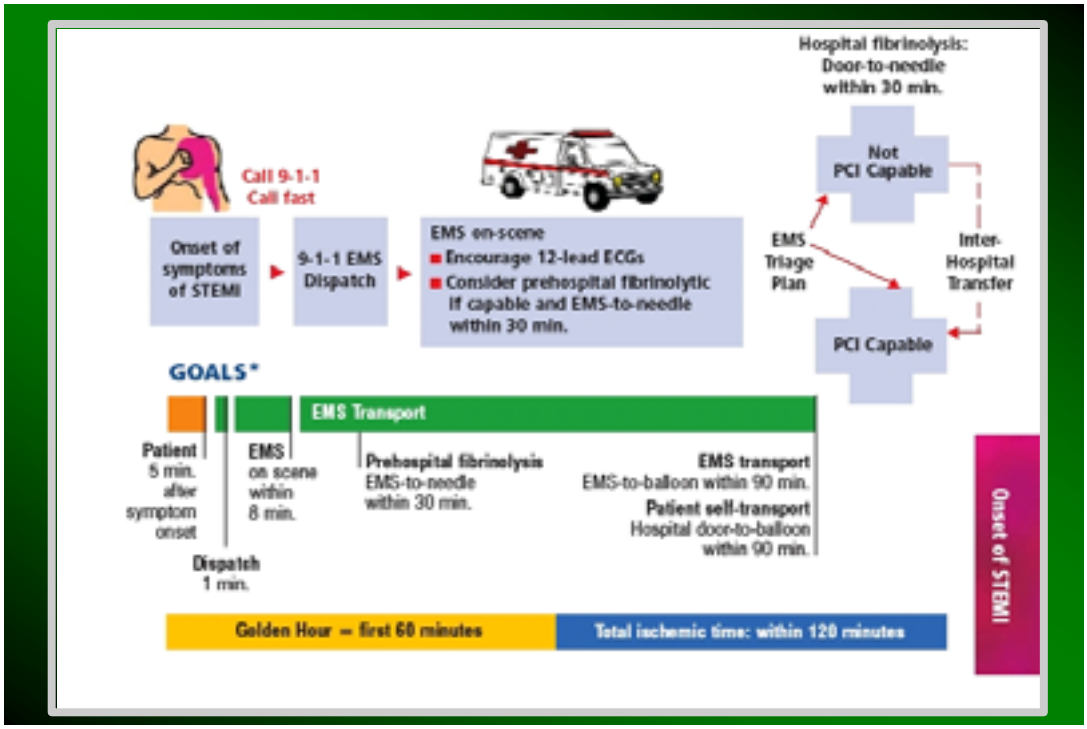
9-1-1

REACT MI Patient Delay

Luepker RV et al. JAMA 2000; 284:60-7




% Ambulance Transport of AMI Patients
100%
75%
50%
25%
0%
Ornato et al.
Ann Emerg Med
1992
Sharkey et al.
JAMA 1989
Herlitz et al.
Am J Cardiol
1989
Ho et al.
Ann Emerg Med
1989
Brown et al.
Circulation 2000
Richmond
Minneapolis
Goteborg
Seattle
REACT


Hospital fibrinolysis:
Door-to-needle
within 30 min.
Call 9-1-1
Call fast
Onset of symptoms of STEMI
9-1-1 EMS Dispatch
EMS on-scene
Encourage 12-lead ECGs
Consider prehospital fibrinolytic if capable and EMS-to-needle within 30 min.
Not PCI Capable
EMS Triage Plan
Inter-Hospital Transfer
PCI Capable
GOALS*
EMS Transport
Patient 5 min. after symptom onset
Dispatch 1 min.
EMS on scene within 8 min.
Prehospital fibrinolysis EMS-to-needle within 30 min.
EMS transport EMS-to-balloon within 90 min.
Patient self-transport Hospital door-to-balloon within 90 min.
Onset of STEMI
Golden Hour = first 60 minutes
Total ischemic time: within 120 minutes

Public Education is a Necessary but Insufficient Solution to the Problem of MI Patient Delay

Present Approach Has Problems

- Patient
- EMS
- ED

Patient Perspective

- Attending out-of-town conference
- Hotel room
- Speaker on tomorrow's program
- "Indigestion" extending to the center of your chest
- Cold sweat

- Call your doctor?
- Call your spouse?
- Take antacids?
- Call 911?

Calling 911 . . .

. . . is a HUGE decision!

Patient Issues

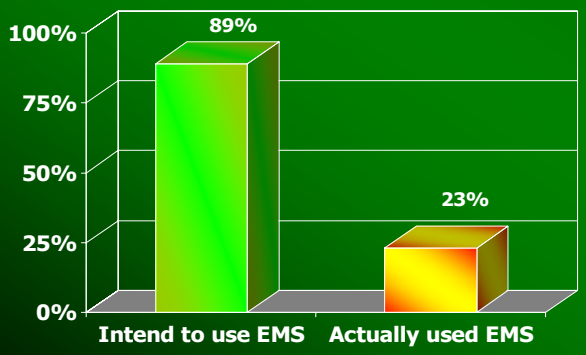
Calling 911 means …

- Loss of control
- Embarrassment
- Inconvenience
- A trip to the ED & admission ➲ $$$

Factors Affecting EMS Use in REACT

Brown et al. Circulation 2000; 102:173-8

- 962 community member phone survey
- 975 ED chest pain patient EMS use



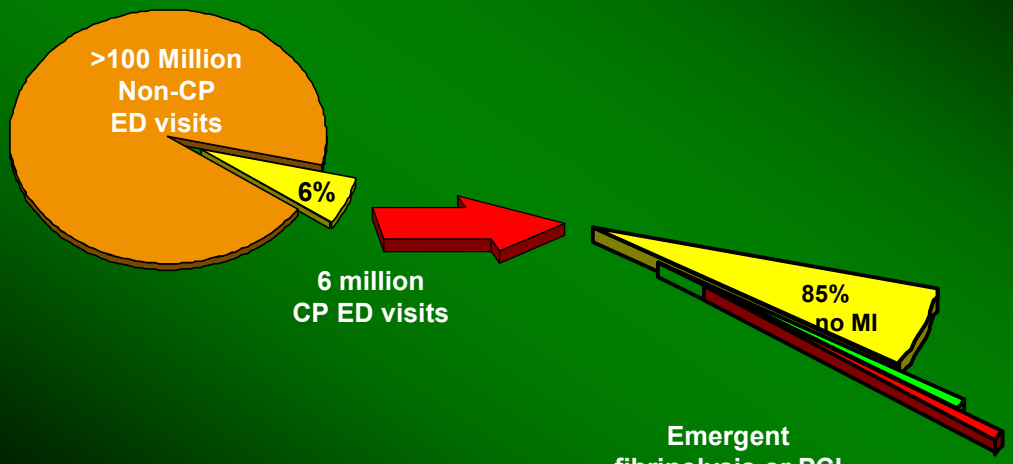
Factors Undermining EMS Use

- Indecision
- Antacid/ASA self-treatment
- Physician contact
- Financial concerns

EMS Issues

- "Send the Marines"
- Mandatory transport to the ED

Emergency Department Challenges



Emergency Department Perspective

- Missed MI rate 1-5%
- Most hospitals can't do advanced ED risk stratification quickly
- High false positive admit rate

Calling 911 could mean . . .

Achieving the NHAAP's goals <u>without</u>

- Loss of self control
- Embarrassment
- Inconvenience
- Unnecessary expense

What if . . .

- EMS provided a consultative service
- Paramedics respond in <10 min
- No lights & sirens
- Pre-hospital telemedicine evaluation

What if . . .

- Advanced diagnostics – ECG, body map, point-of-care cardiac markers
- Wearable AED
- Rapid outpatient follow-up evaluation

Portable Satellite Telemedicine System

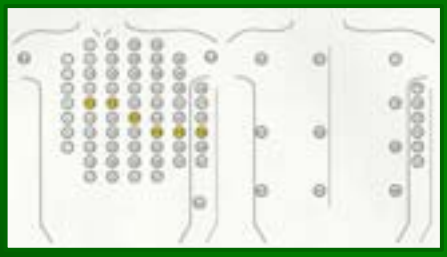
Medical Informatics & Technology Applications Consortium (MediTAC)

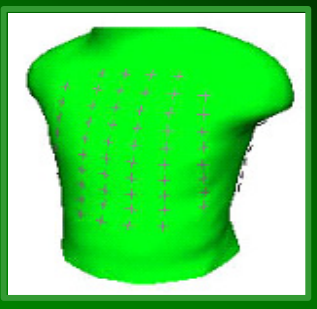
- **Mt. Everest**
- **Ecuador**
- **Bosnia**
- **Former Soviet republics**

Field Point-of-Care Cardiac Markers

CK-MB, Troponin-I, Myoglobin

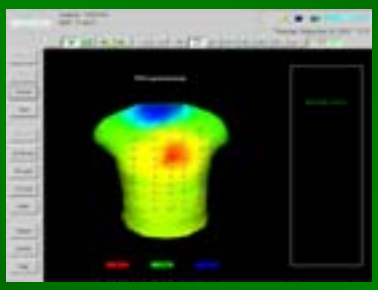
PRIME™ 80-lead Body Map ECG



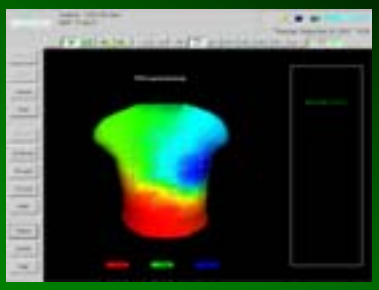


80-lead Body Map STEMI Cases

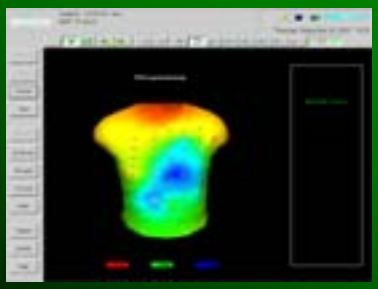
AWMI



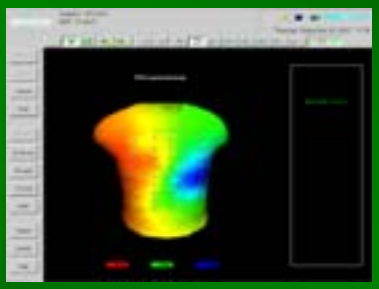
IWMI



PMI



RVMI

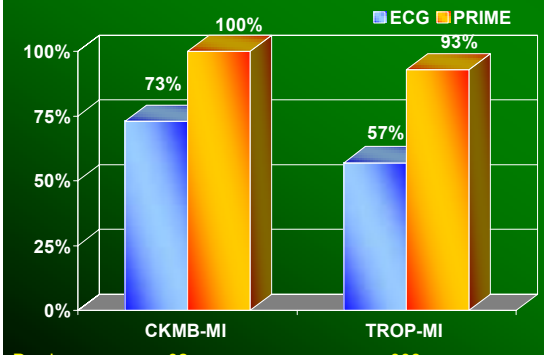


Body Map vs. 12-lead ECG for Detecting Acute ST-elevation MI

Ornato JP, Menown IB, Riddell JW, Carley S, Mackway-Jones K, Higgins GL III, Peberdy MA, Kontos MC, Maynard SJ, Adgey AAJ
J Am Coll Cardiol 2002; 39:332A

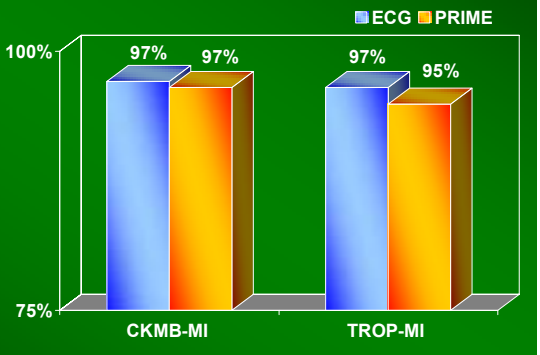
N= 647

Sensitivity



P value . 02 . 008

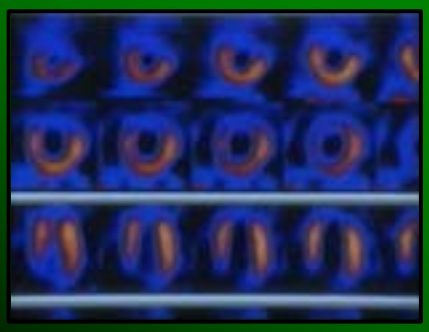
Specificity

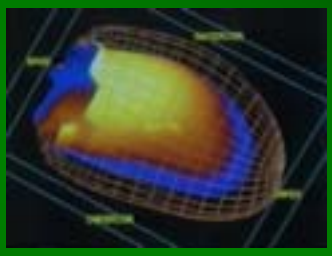


ns ns

Wearable Automated External Defibrillator (AED)

Nuclear Cardiac Scan





All it takes is . . .

And a partnership for improved public health . . .

- EMS
- Emergency Medicine
- Cardiology
- Industry
- Government

Summary

- Our current EMS systems are not configured to best support the needs of chest pain patients
- Technology exists that has the potential to provide a rapid, consultative EMS community service with the potential to shorten time to treatment in MI patients & lower cost

ATTACHMENT H

DR. ALONZO'S PRESENTATION SLIDES

The Social Psychology of the Patient/Situation and EMS Utilization:

"I know I need care, but HOW?"

Angelo A Alonzo

The Ohio State University

"I know I need care, but HOW?"

- Begin with individual and, perhaps, lay others knowing medical care is needed.
- End in the Emergency Department [ED]
- In between is the decision of how to get medical care:
  - Call physician
  - Drive or be driven to ED
  - Dial 911
  - Other variations: taxi, walk, fire station, ambulance
- EMS use overlap with ACS delay issues
  - Proximity in time & Interaction of contributing factors

Factors Facilitating EMS

- Age >65 * & increasing age * R
- Being Female *
- Being Retired R
- Living alone R
- Low income or poverty * R
- Lack of alternative transport*
- HMO subscriber
- Prepayment system in low income areas R
- Uninsured and Medicaid recipients *

- High symptom acuity *
- Taking nitroglycerine R
- History of angina, AMI, PTCA or CABG
- Chronic disease history R
- Being a “Frequent flyer”
- Lack of physical activity at onset
- Distance >10 miles from hospital
- Lay others told them to use EMS
- Perception symptoms due to “heart attack” R
- Told to “go quickly” to the hospital R

Factors Inhibiting EMS

- Being young
- Being Male
- Racial and ethnic minority status * r
  - Hispanics, Asians, Pacific Islanders, Native Americans call less than African Americans
  - Language barriers & cultural practices
  - Immigration concerns
- High education and income *
- Car ownership

- No regular physician
- Lack of health insurance
- Having private insurance
- Non-subscription to EMS prepayment plan
- Calling a physician * R or hospital
- Lack of hospital in county *
- Lack of 911 service *
- Lack of a telephone *
- Cannot chose hospital
- EMS for “dire” emergencies only R

- Perceived unresponsiveness & poor quality of EMS service * R
- Perception that EMS was for the poor
- Embarrassment:
  - False positive diagnosis at ED
  - Neighborhood disruption
  - Strangers in un-kept living quarters R
  - Self presentation concerns R
- Potential to disturb others in family R
- Loss of control

- Perceived driving as easier & faster *
- Engaged in self-treatment R
- Perceived symptoms as not serious, thought they would go away * R
- Unaware of EMS benefits R
- Told to wait before going to ED R

The Problem

- Issue of Demographics, Resources and Perceptions
- Where do these factors interact or "Do their stuff?"
- In Socially Defined Situations

Social Situations

- Daily situations: Our reality and focal point for action:
  - Accomplish goals, pursue values, meet expectations, enhance feelings of emotional well-being, avoid distress
  - AND where we experience the **intersection** of biophysical, psychological, social and cultural factors and factors noted above

- We bring our circumstance or fate to situations: CHD, HBP, COPD, male invulnerability, Hispanic or Asian, female, elderly, high income, poor...

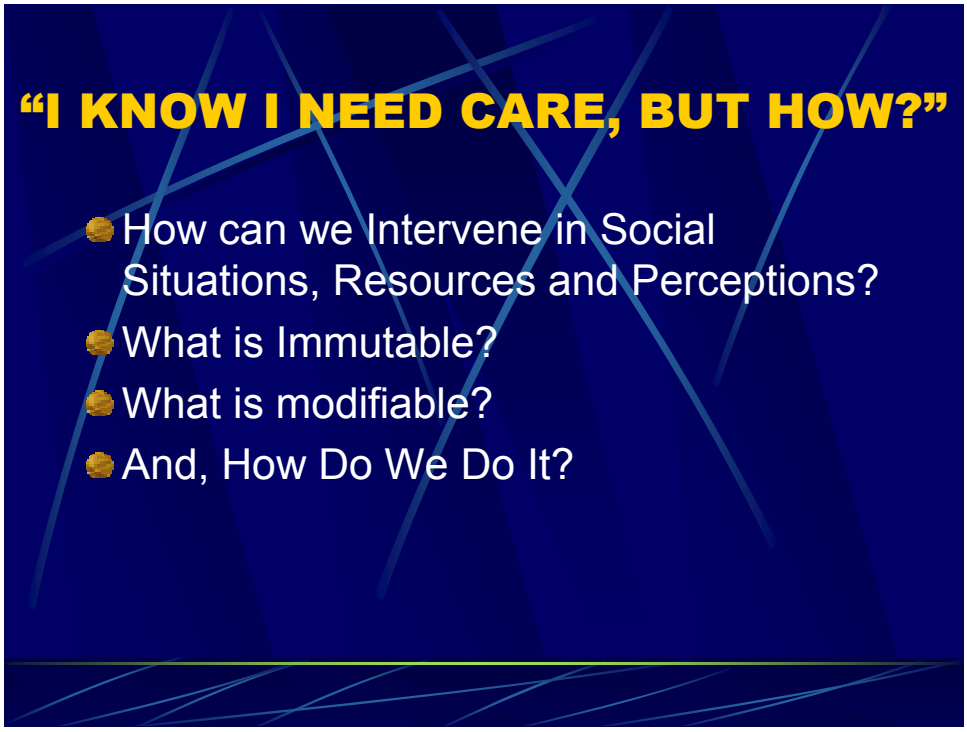
- In socially defined situations:
  - We experience problems, health and otherwise
  - We use Illness Representations
    - Label, Cause, Time-line, Cure-Control, Consequences
  - We construct solutions covertly
  - We try out constructed solutions
  - We evaluate our solutions in action
  - We recursively begin again if not satisfied or in the middle action

Problem Solving Situation

- Simultaneously competing problems:
  - Priority varies with acuity
- Retain important situational participation
  - Balancing both situational participation & health care options when symptomatic
- Covertly considering what to do if symptoms do not resolve
  - Addressing both facilitating and inhibiting factors

Pick a Situation

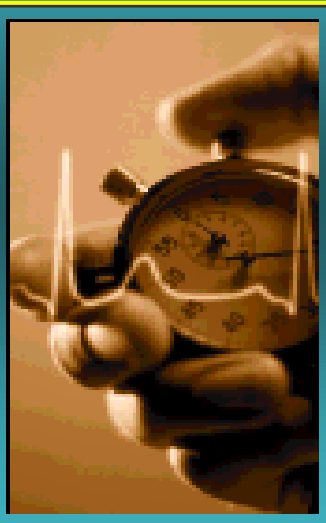
- **Concern for a parent's health**
- **Work related decisions**
- **Negotiations with remodeling contractor**
- **Child/Grandchild's soccer game**
- **ACS symptoms not resolving**
- **Possible medical care & travel mode**


"I KNOW I NEED CARE, BUT HOW?"
How can we Intervene in Social Situations, Resources and Perceptions?
What is Immutable?
What is modifiable?
And, How Do We Do It?

ATTACHMENT I

MS. LONG'S PRESENTATION SLIDES

Act in Time
To Heart Attack Signs



Act in Time to Heart Attack Signs

- NHLBI's national heart attack education campaign urging Americans to

  "Act in Time to Heart Attack Signs"

- Key activity of the NHAAP Coordinating Committee

Act in Time to Heart Attack Signs

- **American Heart Association**
- **American Red Cross**
- **National Council on the Aging**

Act in Time to Heart Attack Signs

- From: **Rapid Early Action for Coronary Treatment (REACT)**

HEART ATTACK REACT
A Community Education Project

- To: **Act in Time to Heart Attack Signs**

National Heart, Lung, and Blood Institute
Learn How to Survive a Heart Attack

Act in Time to Heart Attack Signs

- The goal of "Act in Time" is to:

  Save lives by increasing the number of heart attack victims who are treated within the first hour of experiencing symptoms—the period in which artery-opening treatments are most effective.

- "Act in Time" targets health care professionals, patients, and the public.

Act in Time to Heart Attack Signs

- "Act in Time" used REACT findings and other research to shape campaign strategies and materials and update heart attack warning signs message. Warning signs are:
  - **Chest discomfort – pressure, squeezing, fullness, or pain in the center of the chest**
  - **Pain or discomfort in one or both arms, back, neck, jaw, or stomach**
  - **Shortness of breath**
  - **Breaking out in a cold sweat**
  - **Nausea**
  - **Light-headedness**

Act in Time to Heart Attack Signs

Other key campaign messages:

- Learn the warning signs of a heart attack and what to do if one happens.
- Treatments can stop a heart attack in its tracks. They work best if given within 1 hour of the start of symptoms.
- Uncertainty is normal. When in doubt check it out.
- Minutes matter—call 9-1-1 within 5 minutes
- Plan ahead.

Campaign Materials

Small Group Session Kit
Core brochures in English and Spanish
Wallet Card

Act in Time Web Site:
www.nhlbi.nih.gov

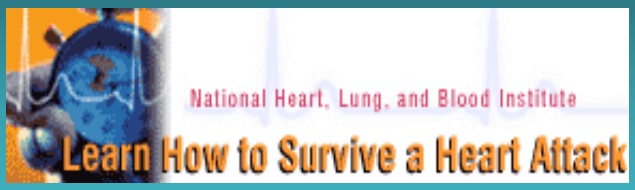
Provider Card
Tear-off Action Plan Tablet and Palm OS

4 New Products

- Act in Time to Heart Attack Signs **Easy to Read Handout - English or Spanish**
- Heart Attack Survival **Discussion Kit for Spanish Speakers**
- Honor Your Heart – **American Indians**
- Honor Your Heart – **Alaskan Natives**

Act in Time to Heart Attack Signs

- The organizations on the Coordinating Committee and others have worked to disseminate “Act in Time” messages and materials.
- Keep up the good work!



ATTACHMENT J

DAY 2 PRESENTATION SLIDES

GOAL

To increase utilization of EMS by patients experiencing symptoms of ACS.

Strategy 1

- Develop a multi-modal long-term public education approach that starts with children then targets high risk audiences and known underserved groups.
  - Famous spokespersons/Role models
  - Teachable moments
  - Data backed approaches
  - Broaden the message (I.e., it's not just chest pains) and narrow the audience
  - Address cultural and language diversity issues.
  - Patient EMS interface and EMS marketing

Strategy 2

- Explore alternatives to the traditional 9-1-1 entry to the EMS system.
  - 3-1-1, 2-1-1

Strategy 3

- Develop alternative models for EMS system response to patients with ACS symptoms.
  - Changing the “send in the Marines” mindset
  - Lights and sirens
  - Chest pain mobile
  - Consider alternatives to the mandatory transport model
    - Address cost issues driving mandatory transport

Strategy 4

- Reduce the social cost of calling the EMS system.
  - Embarrassment
  - Lights and sirens
  - Loss of control/choice
    - Diversion
  - Cultural and language concerns

Strategy 5

- Eliminate cost as an issue for the patient in determining whether to call EMS.

Strategy 6

- Apply quality improvement approaches to EMS treatment of patients with ACS symptoms.
  - Develop a QI toolkit to assess treatment of chest pain patients.
  - QI data availability to the public for accountability and transparency.
  - Ensure incorporation of approaches addressing cultural and language needs of the community.
  - Identify and publish best practices.

Strategy 7

- Develop a program of education for medical providers about EMS capabilities and benefits.

Strategy 8

- Establish a national focus for the EMS system.
  - System Standards
  - Funding
  - Research

Developing Action Items

- What actions need to be taken to address the strategy? (This is the “how” to do the strategy.)
- Who (what organizations) are most appropriate to address each action?
- When should the actions be accomplished?
- How will you measure success?

Goal: Have clean water in the US.

- Strategy: Ensure water treatments facilities for public water systems meet national standards for clean water.

Goal: Have clean water in the US.

- Strategy: Ensure water treatments facilities for public water systems meet national standards for clean water.
  - What actions are necessary to accomplish this strategy?
    - Routinely test the water.

Goal: Have clean water in the US.

- Strategy: Ensure water treatments facilities for public water systems meet national standards for clean water.
  - Who will take the implement the individual actions?
    - United Plumbers Association

Goal: Have clean water in the US.

- Strategy: Ensure water treatments facilities for public water systems meet national standards for clean water.
  - By when will the actions be accomplished?
    - Full initial testing completed by January 1, 2006.

Goal: Have clean water in the US.

- Strategy: Ensure water treatments facilities for public water systems meet national standards for clean water.
  - How will you measure the success of the actions?
    - Random testing by state environmental agencies resulting in 97% compliance with standards.

Group Process

- Each breakout room will have the eight strategies
- Using a nominal process, identify the four priority strategies
- Each table will be assigned one strategy and be responsible for developing one or two action items.

What's next?

- Strategies from both rooms will be combined/collated, and distributed to the Coordinating Committee for comment.
- Recommendations from this effort will be published on the web site.
  - Will also be distilled and added to the background paper for journal publication.

ATTACHMENT K

BREAKOUT GROUP PROCESS

FACILITATING EMERGENCY MEDICAL SERVICES (EMS) UTILIZATION BY PATIENTS WITH ACUTE CORONARY SYNDROMES (ACS) SYMPTOMS:

HOW CAN WE DO BETTER?

Breakout Sessions: Process

FACILITATORS

Dr. Angelo Alonzo—Group A
Dr Allan Braslow—Group B
Ms. Kay Ackerman—Group A
Ms. Dottie St. John—Group B

PARTICIPANTS

Breakout group A: room A1 and B; breakout group B: room B1 (as assigned).

Dr. Bruce MacLeod, Ms. Mary Hand and Ms. Mary Beth Michos will serve as resources between the two rooms to answer questions and observe processes.

CO-FACILITATION PROCESS

For the co-facilitation process to be effective it is important that the co-facilitators divide and coordinate their work and establish expectations prior to the facilitation. Of the various ways to divide co-facilitation labor, it is recommended that for the stakeholders meeting the work be divided in several ways. The first is to have Drs. Braslow and Alonzo (primary facilitators) serve as the interveners with Ms. Ackerman and Ms. St. John (secondary) serving as recorders. Each of the pairs should discuss prior to the session who shall handle the task process and who will focus on the relationship process. These processes are discussed in the handout starting on page K–2. A customized GAP analysis format will be used.

Where are we?→→→→ (GAP) →→→→ Where do we want to be?
How do we get there?

In the morning session we will discuss the "Where are we." In our previous discussions we have identified that our goal/vision (where we want to be) is "a higher percent of patients with ACS being transported by the EMS system (9–1–1)" (Where we want to be).

DAY ONE—AFTERNOON

Breakout 1

1:30 p.m.–3:45 p.m.

Develop/identify strategies for, "How do we get an increase in the percent of patients with ACS symptoms being transported by the EMS system?"

Question for breakout participants:

- **How do we get an increase in the percent of patients with ACS being transported by the EMS system?**

Process: Facilitators will explain there will be introductory discussions to two rounds of group work. First, there will be general discussion related to the patient/social/psychological issues/aspect for 10 minutes. Then the groups will proceed to round one work. After the group work in round one, there will be 10 minutes of general discussion about system issues, as an introduction to the second round of group work. [Also explain that each group will need to identify a primary facilitator/spokesperson for reporting to the large group session].

Introduction to Round One—General Reflections on Patient/Social Psychological Aspects of the Decision to Call (10 minutes)

- General discussion regarding the issue of calling EMS, with the focus on the patient and social psychological aspects of making the decision to call EMS.

- Share personal and professional reflections/experiences, related to what participants heard in the morning.

Round One: Patient Issues

Twenty minute discussion among participants at each table exploring the decision to call from the patient/social psychological aspects:

- Participants at each table will be given 3x5 index cards and asked to think a few minutes about (patient) strategies to increase the percent of patients with ACS symptoms calling EMS, and write them on the index cards.

- Participants at each table will share their ideas; facilitators will ask for 2–3 ideas from each table.

Thirty minute report out—What are the strategies to get people to call?

- Write each table's ideas on the flip charts. After all are submitted the group will look and consolidate common themes.

- If needed, prioritize the ideas—a nominal group process can be used.

- Solicit recommendations from group for reporting back to the general session.

Introduction to Round Two—General Discussion on EMS/Health Care System Issues Affecting the Decision to Call 9–1–1/EMS (10 minutes)

Round Two: System Issues

Twenty minute discussion on system issues:

- Participants at each table will be given 3x5 note cards and asked to think a few minutes about (system) strategies; facilitators will write them on the index cards.

- Participants at each table will share their ideas; facilitators will ask for 2–3 ideas from each table.

Thirty minute report out:

- Write each table's ideas on the newsprint. After all are submitted the group will examine the output and consolidate common themes.

- If needed prioritize the ideas—a nominal group process can be used.

- Solicit recommendations from the group for reporting back to the general session.

Thirty minute break will be provided as a buffer in case breakout groups go over time and to allow for facilitators to get together before they report out.

Report Back to the Large Group

- Ms. Michos and Dr. MacLeod will facilitate session.

- Each group's primary facilitator will report back.

- Discuss common themes for possible consolidation.

End of First Day

- Facilitators and Ms. Hand, Dr. MacLeod, and Ms. Michos will need to review recommendations and refine strategies for opening Tuesday morning.

3:45 p.m.
Break

4:15 p.m.–5:00 p.m.
Large Group Session **Rooms C/D**

DAY TWO

8:30 a.m.–9:15 a.m. **Rooms C/D**
Large Group Session:

Recommended Strategies To Promote EMS Utilization:
Review of Top Line Recommendations From Breakout Groups I and II

- Ms. Michos and Dr. MacLeod will report out and review the recommended strategies from day 1.

Breakout 2
9:30 a.m.–11:30 a.m.

Questions for participants:

- **How do we implement/achieve these strategies? What actions are needed to be taken by whom, how, and when?**
- **For each strategy, what are the measures of success? How will successful implementation of the strategy be measured? (i.e., What is the performance measure?)**
- **How much improvement is achievable per year (or other unit of time)?**

Assignments can be made to organizations on the Coordinating Committee or the representatives can say what each organization can do to address the strategies.

How we divide is based on the number and nature of the strategies from day one.

Process:

- Each breakout group will take all of the strategies and assign one to each table for development of actions to achieve strategies. If there are many strategies (more than 4 or 5) they may have to be divided between both rooms for individual assignment to each strategy.
- Open with discussion.
- Each table will work on their strategy answering:
  - What (the "what" is the strategy).
  - Who (e.g., organization or other entity).
  - How (e.g., how will the organization or entity implement the strategy).

  - When (e.g., when will the strategy be achieved).
  - How much improvement is achievable per year (or other unit of time).
- Each table will report back in their group for refinement and input from the others.
- Last 5–10 minutes.
- Each breakout will prepare a report out.

11:45 a.m.–1:15 p.m. **Rooms C/D**
Large Group Session

Report of Breakout Groups:

Group A Report	Dr. Alonzo
Group B Report	Dr. Braslow

1:05 p.m.
Summary/Next Steps Dr. MacLeod
Ms. Michos

1:15 p.m.
Adjournment Ms. Hand

- Ms. Michos and Dr. MacLeod to facilitate.
- Depending on how strategies were divided the break out groups will report back. If each group handled all of the strategies then once again commonalities should be determined and consensus sought if recommendations conflict.
- Dr. MacLeod and Ms. Michos to discuss where we go from here with recommendations.
- Thank all.
- Ms. Hand wraps-up and adjourns meeting.

****

LOGISTICS

- Room set-up:
  - Square/rectangle seating 5–8 per table.

SUPPLIES AND EQUIPMENT

- Newsprint—one in each room.
- Overhead projector—one in each room.
- Pens.
- Computer and projector.
- 3x5 index cards.

ATTACHMENT L

NEWSPRINT/FLIPCHART COMMENTS FROM GROUPS A AND B

NATIONAL HEART ATTACK ALERT PROGRAM

BREAKOUT SESSIONS

NEWSPRINT FROM GROUPS A AND B

October 25–26, 2004

- **Highlighted areas are words that could not be deciphered.**
- **If something was underscored or circled on the poster, it is indicated in the text, either by underline or a different colored font.**
- **The ( ) around a number indicates that the number was circled on the poster.**
- **Added a "Top Four Strategies" heading for Group A to keep all the information consistent.**

GROUP A

Voting Decision—Strategies 10/26/04

1. Develop a multimodal, long-term, education approach that starts with children, then targets high-risk audiences and known underserved groups.***** (10) #2
2. Explore alternatives to the traditional 9–1–1 entry to the emergency medical services (EMS) system.***** (5) #3 (10)
3. Develop alternative models for EMS system response to patients with acute coronary syndromes (ACS) symptoms. (5)
4. Reduce the social cost of calling the EMS system. (7)
5. Eliminate cost as an issue for the patient in determining whether to call EMS. (1)
6. Apply quality improvement approaches to EMS treatment of patients with ACS symptoms.***** (10) #1
7. Develop a program of education for medical providers about EMS capabilities and benefits. (2)
8. Establish a national focus for the EMS system.***** (12) #4

* Indicates a top four strategy.

Top Four Strategies

1. Public education.

2–3. Alternatives to traditional 9–1–1.

6. Quality improvement approaches.

8. Establish a national focus for the EMS system.

The group then considered the following questions:

1. **What actions** are necessary to accomplish the strategy?
2. **Who** (what organization[s]) should be responsible for the action?
3. **By when** should it be implemented and accomplished?
4. **How** will you **measure** the success of the action and strategy?

Strategy 1: Multimodal, Long-Term, Public Education

Action #1

What: NHLBI will contact a spokesperson or celebrities with coronary heart disease to discuss their response to ACS symptoms (e.g., on the "Oprah Winfrey" show).

Who: NHLBI would work with a public relations group.

When: By end fiscal year 2005.

Measure: Number of patients with ACS contacting 9–1–1.

Action #2

What: All patients in the ED with ACS symptoms.

- Provide education materials at discharge.

High-risk patients encountered in the physician's office

- Provide education materials.

Who: ED and physician practices.

- Materials already exist.
- NHLBI provides material.

When: By end of fiscal year 2005.

Measure: Number of patients with ACS contacting 9–1–1, Number of patients driving themselves to the ED decreased by 50 percent (e.g., 18 percent to 9 percent in 2 years).

Action #3

What: Expand health education in schools (elementary to high school) .

- Provide information about healthy lifestyle.
- Provide information about symptoms of ACS.
- Train students to use automated external defibrillators (AEDs).
- Provide cardiopulmonary resuscitation (CPR) training.
- Require CPR certification as part of diploma requirements.
- Expose children to EMS at young age (bring your ambulance to school day).

Who: Federal mandate, youth organizations.

When: By 2008.

Measure: Increase in CPR certification; increase in number of ambulances doing school visits.

Strategies 2 and 3: Alternative to Traditional Entry to the EMS System and Alternative Models for EMS Response

Action #1

What: Have two public numbers (9–1–1 for emergencies, 3–1–1 for nonemergencies); public makes own decision.

Who: EMS/fire (to educate public), local and State governments.

When: 2005–2006 pilot.

Action #2

What: Dispatcher using scripts to triage.

- Full response.
- Paramedic house call (chest pain mobile).
- Advise/reassurance:
  - Call physician.

– Self-transport.

Who: System medical directors with EMS/fire, local and State approval.

When: 2005–2006.

Measure (for both actions): Pilot/Test Pre/Postanalysis

- Increase true positives for signs of ACS with disease.
- Decrease use of full response (L&S) for nontime-dependent conditions (impending arrest and cardiogenic shock).
- Cost savings from tiered response (pays for itself!).

Strategy 6: Quality Improvement Approaches

Action #1

Develop quality assurance (QA) pathways for EMS and ED.

EMS QA pathway—dispatched as chest pain/shortness of breath

What:

- 12-lead electrocardiogram (ECG) rate.
- Intravenous (IV) rate.
- Nitroglycerin rate.
- Transport rate.
- Transport destination.

Who: NHTSA (National Highway Traffic and Safety Administration), AHRQ (Agency for Healthcare Research and Quality), NAEMT (National Association of Emergency Medical Technicians), IAFF (International Association of Fire Fighters), NAEMSP (National Association of EMS Physicians), NASEMSD (National Association of State EMS Directors), ACC (American College of Cardiology), AHA (American Heart Association).

When: Plan 18 months, implementation 2 years later.

Measure: States have adopted plans for receiving reports, publish best practices.

ED QA pathway—triage patients by categories

- Level 1—STEMI.
- Level 2—non-STEMI/UA.
- Level 3—first ECG/enzyme negative—high probability.
- Level 4—first ECG/enzyme negative—low probability.
- Level 5—noncardiac chest pain.

What:

- Level 1—STEMI:
  - Time to PCI (percutaneous coronary intervention)/lytics.
  - Morbidity/mortality.
  - Adjunctive medications (i.e., aspirin [acetylsalicylic acid], BB [beta blockers], ACE [angiotensin converting enzyme] inhibitor, clopidogrel, etc.).
  - Education.
- Level 2—non-STEMI/UA:
  - Adjunctive medications.
  - PCI, if indicated.
  - Education.
- Level 3, 4, 5:
  - Appropriateness of classification.
  - Appropriate tests.
  - Appropriate medications.
  - Education.

Who: ACC, AHA, ACEP, SAEM (Society for Academic Emergency Medicine), ACP/ASIM (American College of Physicians/American Society of Internal Medicine), SCPC (Society of Chest Pain Centers).

When: Plan 18 months, implementation 2 years after.

Measures: Reports from JCAHO (Joint Commission on the Accreditation of Healthcare Organizations), CMS (Centers for Medicare and Medicaid Services), QIOs (Quality Improvement Organizations); publish best practices.

Strategy 8: Establish a National Focus for EMS

Action #1

What: Establish a national focus for EMS for each of: system standards; funding; research

- Establish a lead agency for EMS nationally with appropriate liaisons with other agencies (long-term goal).
- Funding should be a Government responsibility—(tax supported) with needed support via State and nationally for those communities needing help (articulate this standard now, encourage movement in this–as we helped with 911 policy).
- System standards and personnel standards should be set, with licensure of EMS personnel (ideally led by lead agency) and competency ascertainment (articulate this now, encourage expansion of current curriculum standards to include competency standards).
- 12-lead ECGs should be standard in 100 percent of ACS patients in 100 percent of States with demonstrated competency (2 years) [rates as above→ by survey of States].
- Research in EMS recognition and care of ACS patients should be supported by NIH, AHRQ, and probably other agencies, such as CDC, HRSA (Health Resources and Services Administration) as well as general EMS/ED research (now and continuous) [targeted research $ and projects].

Who: Ideally there would be a lead agency (see above), but in the meanwhile, for system standards, State-by-State (State EMS medical directors professional organization), hopefully with more national leadership from agencies and NHAAP, etc. (and willing organization of NHAAP).

When: ASAP (see above).

Success measured by: See above.

DR. ALONZO—GROUP A, STRATEGIES 10/25/04

Patient

- Educating kids—ACS symptoms.
- Oprah Winfrey—Celebrity spokesperson.
- Public information campaign targeting specific language and cultures.
- Broaden the message, narrow the audience—high-risk target.
  - Strategy:
    - Patient education:
      - Kids.
      - High-risk ACS—age/gender.
      - Family.
      - Bystander.
      - Celebrity.
    - Target known:
      - Limited.
      - Underserved.
- Two-Tier system:
  - If there are symptoms—9–1–1.
  - If choose 9–1–1, not get to hospital.
- 9–1–1 alternative, i.e., 9–1–2 (triage):
  - Person to talk to.
  - Heart info—REACT.
- Target general population:
  - Heart screening.
  - Risk profile.

- CPR training—retool:
  - First chance of survival.
  - Family member of high-risk patients referred to CPR training.
- Three different messages:
  - Patient.
  - Family.
  - Bystander.
- Video game—9–1–1 learning educational.
- Better research to better identify those with ACS.
- Gender- and age-specific messages.
- Home ECG monitor for high risk.

Systems

- Universal health insurance.
- Decision to go to local hospital vs. cardiac center—how to decide—research/implementation.
- Patient choice—family member in ambulance.
- Reduce public embarrassment.
- Clear cardiac triage guidelines.
- EMS—better public information and better advocates for themselves.
- No hospital can go on diversion—"unless hospital is on fire."
- Fix ED overcrowding issue—staffed beds.
- Look at hospital's internal problems.
- National standards for EMS consistency.
- No national ownership for EMS.
- Funding for EMS—insurance, Federal funds, Medicare, Medicaid.

- EMS—own department, funding, research.
- Marketing plan—EMS.
- Improve public EMS interface:
  - More positive.
- Develop Best Practice database—EMS—who does what better.
- Earlier/low threshold for patients to get care (info):
  - Online coaching facilitating patients into EMS.
- EMS data system—disclosure.
- Minority recruitment into EMS—more diverse.
- No lights/siren last mile.
- QI system for EMS—quality evaluation.
- More flexible to patient needs–loosen up mandatory transport rule—research needed.
- Clearer message from health maintenance organizations (HMOs)/insurance companies when to call EMS.

GROUP B

Voting Decision—Strategies 10/26/04

1. Develop a multimodal, long-term, public education approach that starts with children, then targets high-risk audiences and known underserved groups.* (15 votes)
2. Explore alternatives to the traditional 9–1–1 entry to the EMS system. (6 votes)
3. Develop alternative models for EMS system response to patients with ACS symptoms.* (11 votes)
4. Reduce the social cost of calling the EMS system.* (10 votes)
5. Eliminate cost as an issue for the patient in determining whether to call EMS. (3 votes)
6. Apply QI approaches to EMS treatment of patients with ACS symptoms. (5 votes)
7. Develop a program of education for medical providers about EMS capabilities and benefits.* (10 votes)

* Indicates a top four strategy.

8. Establish a national focus for the EMS system. (4 votes)

Top Four Strategies

1. Public education.

3. Alternative modes of EMS.

4. Reduce social cost of calling EMS.

7. Education about EMS for medical providers.

The group then considered the following questions:

5. **What actions** are necessary to accomplish the strategy?

6. **Who** (what organization[s]) should be responsible for the action?

7. **By when** should it be implemented and accomplished?

8. **How** will you **measure** the success of the action and strategy?

Strategy #1: Multimodal, Long-Term, Public Education

- By July 2005, the NHLBI (with guidance from the Education Subcommittee) shall develop a written plan to evaluate the utilization and effectiveness of the Act in Time campaign.

- By February 2006, the Science Base Subcommittee, shall evaluate the current Act in Time message with an emphasis on increasing sensitivity and maintaining or increasing specificity, and report to the coordinating committee.

- By October 2007, the NHLBI (in cooperation with CDC) shall use public health and marketing experts to design a comprehensive written, data-driven strategy to guide ACS public information and intervention. Traditional and nontraditional approaches should be considered.

Strategy #3: Alternative Models for EMS Response

What: Develop national evidence-based/consensus guidelines for dispatch, treatment, and disposition of patients with ACS symptoms (consider alternatives to current practice that would increase access of patients with ACS).

Who: NHTSA with national EMS associations and other interested parties, e.g. NAED (National Academies of Emergency Dispatch), IAFC (International Association of Fire Chiefs), IAFF, NAEMSP, NASEMSD, NIH/NHAAP, etc.—NHLBI should fund.

When: By 2007

Measure: National/State survey/percent jurisdictions who have partially or completely implemented guidelines.

Strategy #4: Reduce the Social Cost of Calling EMS

To decrease social cost/stigma of calling the EMS system.

Action #1

Baseline evaluation (perception of EMS):

- Developed by NHAAP (Education Committee, etc.) (6/05–10/05).
- Assessed by EMS groups (1/06–ongoing).
  - Who is assessed?

Multicultural
- ► School students.
- ► Work force.
- ► Seniors.

Action #2

Prioritize groups for intensive education efforts (6/06):

- Performed by local EMS "Train the Trainer."

Action #3

Educational material for identified groups:

- Developed by NHAAP (age/ethnic groups/geographic area/language barriers) (6/06).
- Message delivered to targeted groups by EMS centers (plus "Train the Trainer") (6/06–ongoing).

Action #4

Evaluation of effectiveness (10/06–ongoing):

- Resurvey targeted groups.
- Evaluate EMS date regarding utilization of services by targeted groups.

Action #5

What's next?

- Ongoing assessment of (begin 10/06–ongoing):
  - In ED's (Future plan to be determined with EMS timeline).
  - ACS patients presenting.
    - Via EMS.
    - Via other means.
- Assess change [differences/barriers] of two groups:
  - Outcomes.
  - Reasons for these differences!

Strategy 7: Education for Medical Providers About EMS Capabilities and Benefits

Action #1

What: Develop EMS capabilities/services campaign template for medical providers.

Who: Fire chiefs, paramedics, EMS medical providers.

When: November 2005.

Measure: Assess whether it was developed.

Action #2

What: Dissemination of EMS capabilities/services campaign at the local level.

Who: Local EMS providers, local medical society endorsements.

When: November 2006.

Measure: Survey of EMS services managers: 50 percent.

DR. BRASLOW—GROUP B, STRATEGIES 10/25/04

- Universal 9–1–1.
- Available E-9–1–1 (Enhanced 9–1–1).
- Available basic life support (BLS).
- Available advanced life support (ALS).
- Only about 140 counties in United States don't have 9–1–1.
- www.NENA.org (National Emergency Number Association).
- Ninety-six percent geographic coverage (9–1–1).
- Wireless—60+ percent 9–1–1 coverage.

Overcome Denial Factors (Rationalizations)

- Rank denial against other circumstances.
- Publicity factor:
  - Public education.
  - Public service announcement by survivors.
- Address cost issues:
  - Believe it's an increasing issue.
- Give positive reinforcement:
  - Monetary if real myocardial infarction (MI).
  - Thank people.
  - Higher deductible for walk-in.
- Use positive role models on TV (dissuade people from Hollywood MI picture) (teachable moment).
- Give broader representation of symptoms:
  - Greatest specificity of message (needs science).
- Give people greater option in choosing mode of response (non-emergency just as quick as emergency but with less embarrassment) (system issue).

- Public education—sustained, not one time (How did seatbelt campaign work?):
  - Start in high school (kindergarten).
  - Target high-risk patients in later life.
  - General public, especially in "educable moment."
  - Develop scientific data on message—sensitive, specific, memorable.

Education

- All family members aware of symptoms.
- Redefine term "heart attack" (heart attack is chest pain).
- Improve communication between doctors and patients regarding symptoms that show up.
- Enlist AARP (American Association of Retired Persons) publications and mailings:
  - Lay publications.
  - Nonscientific.
  - Local freebie publications.
  - Nonprint.

Role of EMS To Educate

- Nontransport liability and no-pay.
- Alternative to 9–1–1 without automatic scripted response.
- Look at EMS response (don't need Marines on every call)*:
  - Midlevel providers.
- Increase access for 9–1–1 and ALS and BLS.
- Develop toolkit for EMS systems to use to understand all chest pain (and develop community-specific solutions).
- Using condition codes for insurance reimbursement rather than diagnosis.
- Increase use of (audio, video) dispatch instructions in those places where it's not done or very limited.

- Emphasize message that people with CP who use ambulance get seen quicker in emergency department.
- Public needs to know about working of EMS system (people don't know how good they are):
  - Value.
  - How they help.
  - Will they give advice by phone.
- Nanotechnology for improved diagnostics/implants.
- Improve dispatcher/call-taker training at 9–1–1 (e.g., San Diego retrains retirees who respond in cruisers).

Simplify Cost Factors

- Tort reform (control liability):
  - Good Samaritan.
  - Helps off duty, in some States.
- Cost:
  - Tort reform.
  - Defensive tests raise cost.
- Get message out (for example, fire departments):
  - What EMS is.
  - What a heart attack is.
- Expand 9–1–1—EMS people help determine best course of action (9–1–2?).
- Universal 9–1–1.
- Available E-9–1–1.
- Available BLS.
- Available ALS.
- Only about 140 counties in the United States don't have 9–1–1.
- www.NENA.org.

- Ninety-six percent geographic coverage.
- Wireless is more than 60 percent.

9–1–1/EMS System Focus

- Use EMS system to educate and inform the public:
  - Quantify suspected issues of miseducation.
  - Restrictions caused by issues of liability.
- Educate doctors/HMOs regarding EMS.
- Access to 9–1–1:
  - Availability.
  - What you get when you connect.
  - Expanded protocols.
- Response:
  - Something besides the "sending the Marines."
- Handle the cost:
  - Condition codes versus diagnosis for reimbursement.

Patient Focus

- Address issues of:
  - Rationalization/denial.
  - Sensitivity to cost.
  - Awareness that heart attack is not just chest pain.
  - Get data to back the message.
  - "Sending the Marines" sensitivity.

- Sustained/long-term message:
  - Start with young kids.
  - Target audiences.
  - Teachable moments.
  - Role models.
  - Variety of venues/modes—AARP, Oprah, Larry King, movie theaters, cruise ships (Side notes from Larry Jones).

ADDITIONAL NOTES AT THE END FROM DR. SOPKO, NHLBI

Dr. Sopko

- Addendum notes.
- Educational strategies:
  - Drivers' license renewal coupled with patient education materials.
  - Places like grocery stores where patients go to for screening (like blood pressure checks).
  - During community screenings—like diabetes, cholesterol—couple with ACS (acute coronary syndrome) message.
  - EMS services extend relationship-building in the community—EMTs become less threatening if they are known to the community.
  - Churches—utilize them better (examples: Parish Nurse Association, AHA materials targeted to churches).
- Education by pharmaceutical companies/organizations, attached to the medicines.

ATTACHMENT M

SURVIVOR CARE WORK GROUP MEETING SUMMARY

SURVIVOR CARE WORK GROUP MEETING SUMMARY

October 26, 2004

2:00–3:30 p.m.

MEMBERS PARTICIPATING:

Dr. Robert Zalenski—Chair
Dr. Richard Gillum—Vice Chair
Dr. James Griffith
Ms. Julie Bracken
Ms. Mary Hand—NHLBI Staff

CALL-IN:

Dr. Tammie Quest
Dr. Scott Compton
Dr. Stephen Knazik

The Survivor Care Working Group met immediately following the National Heart Attack Alert Program (NHAAP) Coordinating Committee meeting at the Neuroscience Conference Center, Rockville, MD. Members who attended the NHAAP Coordinating Committee meeting stayed to participate in the working group meeting. Several others participated via conference call.

After technical difficulties with the phone system were resolved, Dr. Zalenski called the meeting to order. The meeting was recorded and notes were taken by Ms. Hand. After brief self-introductions by members, Ms. Hand explained that the Executive Committee had met the previous day and discussed and approved the working group's proposal that the Survivor Care review article/white paper be included as an official NHAAP paper. She described that, as such, this would mean review and approval by 40 member organizations and by NHLBI. Dr. Zalenski explained that he viewed this as an educational effort to bring the issue of survivor care to the attention of opinion leaders in the member organizations, which will be vital to the implementation of needed changes in clinical practice. Ms. Hand suggested that the working group's recommendations, once published, might best be addressed through the Education Subcommittee, notably those recommendations for which there is an evidence base for clinical interventions that require dissemination. She noted that working group members who have not done so may need to complete a conflict of interest form once the NHLBI has finalized its procedures for documenting conflict of interest related to working groups it convenes.

Ms. Hand indicated that one possibility that she had discussed with the Executive Committee was to hold the next NHAAP Coordinating Committee meeting in conjunction with the American Heart Association's (AHA) 6th Scientific Forum on Quality of Care and Outcomes Research in Cardiovascular Disease and Stroke, to be held May 14–16, 2005 in Washington, DC. However, based on schedules, the Executive Committee determined that the next NHAAP Coordinating Committee meeting would be held on June 6–7, 2005. Dr. Gillum suggested that

the working group make a formal presentation based on the review paper at the AHA Quality of Care and Outcomes Research scientific forum, with Drs. Zalenski and Quest presenting. Abstract presentation information can be found at: http://www.americanheart.org/presenter.jhtml?identifier=3016657.

Dr. Gillum suggested that the working group start a collection of all identified reprints and training materials on care of the suddenly bereaved, including: material from the American Trauma Society's 2nd Trauma Program; materials referenced by Dr. Knazik as well as those mentioned by several Executive Committee members, notably Dr. Bruce McLeod (who cited a program at Mercy Medical Center in Pittsburgh); Dr. James Atkins (who noted that there is a Memphis program that included a video used in his hospital); and Dr. Joseph Ornato, AHA representative (who noted there is relevant material in the new AHA Advanced Cardiac Life Support program). The Sudden Cardiac Arrest Survivor Network has a DVD video that is relevant, as are the following: Dr. Quest's training materials from her study (Quest TE, Otsuki JA Banja J, et al. The use of standardized patients within a procedural competency model to teach death disclosure. *Acad Emerg Med.* 2002;9:1326–1333; ref 24); the University of Maryland, Baltimore Campus curriculum (Smith TL, Walz BJ, Smith RL. A death education curriculum for emergency physicians, paramedics, and other emergency personnel. *Prehosp Emerg Care.* 1999;3:37–41); and the University of Oregon curriculum (Tolle SW, Elliot DL, Hickam DH. Physician attitudes and practices at the time of patient death. *Arch Intern Med.* 1984;144:2389–2391.) Dr. Gillum suggested compiling a listing of these and related materials to have as an appendix to the paper.

The October 2004 draft of the review article was then discussed. Coauthors have contributed to the text/tables of the revised paper. Ms. Hand observed that the paper should clearly identify implications for changes in clinical care, for which there are currently a strong evidence base, and recommendations for further research. Dr. Zalenski asked whether it was possible to formally rate the levels of evidence in a way similar to AHA/America College of Cardiology (ACC) clinical guidelines or the Institute of Medicine report on palliative care. Drs. Quest and Gillum acknowledged Ms. Hand's suggestion but expressed their sense that the evidence is not strong for any of the clinical interventions mentioned in the review article, so a formal evidence-based approach seemed premature. Research funding has been lacking and this should be mentioned in the paper. Research is needed across the board on the issues mentioned in the paper and thus implementation should be within a research and development context. Ms. Hand suggested apprising the Behavioral Medicine Branch of the Division of Epidemiology and Clinical Applications at NHLBI, National Institutes of Health, of the group's work (team leader: Dr. Peter Kaufmann) and inviting their input and help in obtaining funding. Dr. Griffith pointed out the some of the early research will need to be qualitative, such as direct observation of death disclosure and indepth interviews with survivors who witness resuscitation, in addition to quantitative scaled research. The National Institute of Mental Health and the National Institute on Aging could also potentially help (see page 9 of October 20, 2004 draft). He repeated his concern that there may be a subgroup for which witnessed resuscitation might be harmful, and that research must include demonstrating safety even before proving efficacy. Dr. Quest agreed but noted informed consent in an emergency setting is a problem that needs to be solved.

Dr. Quest asked Dr. Griffith and others for comments on table 4 (p. 35–36), which she had added to the current draft. Her aim was to clarify the use of pharmacotherapy in acute traumatic bereavement (e.g., family witnessed resuscitation). Dr Griffith explained there are three syndromes related to traumatic bereavement: acute immediate stress response, the normal human response to a traumatic event (currently not shown in table 4); acute stress disorder, an abnormal precursor to posttraumatic stress disorder (PTSD) in many cases; and actual PTSD. Medication is generally reserved for PTSD. Information, social support, and spiritual support, rather than medication, is appropriate for acute immediate stress. Dr. Griffith will send copies of some of his teaching slides on this information to aid in revision of the table, adding a third column and text.

Dr. Zalenski noted that Dr. Alonzo, who was unable to stay for the meeting, will provide previously assigned material on PTSD for the next draft.

Ms. Bracken recommended that the paper more clearly separate the authors' conclusions/opinions from results of the literature review from research recommendations. Dr. Gillum suggested adding one or more tables to do this, especially to highlight research needs. Dr. Quest observed there were more data and publications on family witnessed resuscitation than other interventions but that more research was needed.

Dr Griffith suggested that the paper recommend formation of a consortium of centers with experience in these areas, so investigators can share ideas and data and develop multicenter studies of death disclosure, family witnessed resuscitation, etc. Dr. Quest supported this suggestion.

Dr. Gillum said one clear research need is a multicenter study of current practice in death disclosure. Best practices should be identified for further research. Dr. Quest reported on a pilot survey she conducted of emergency medicine residency programs on how much time was spent teaching death disclosure (30 percent—0 hours; the other 70 percent—the average was one hour or less didactic teaching in 3–4-year programs). The pilot survey results that were presented in 1998 were published only in abstract form and need to be repeated. Dr. Gillum suggested the group add her preliminary data to the review article, given the lack of data in the literature. Dr. Quest agreed to add these findings to the article. Dr. Knasik will share literature on death disclosure to children and related training materials that are available. Dr Griffith observed that medical students are taught about delivering bad news using standardized patients (actors). But Dr. Quest said this is almost exclusively limited to telling an inpatient they have cancer, etc. However, a report in *Pediatric Emergency Care* might be relevant regarding sudden death. She will send the reference to Dr. Zalenski to add to the paper.

Regarding followup care for cardiovascular disease (CVD) prevention, Dr. Gillum reported he had found only studies showing excess mortality and psychiatric morbidity in the year after bereavement but none on interventions. Dr. Griffith said that depression occurs in roughly 10–15 percent of survivors and many studies show its link to CVD, so depression and lack of self-care are likely mechanisms and points for intervention. Dr. Gillum wondered if Framingham had published or unpublished data on morbidity after bereavement. Dr. Zalenski asked if there was evidence related to the benefits of intervention for CVD prevention (with bereaved family

members/loved ones). Dr. Gillum said there is no direct evidence, but there is documentation of increased CVD risk and death in spouses the year after bereavement, and there are clinical guidelines for risk factor control that can be applied to bereaved and other persons. The likelihood of lapse in personal care, including compliance with medication after bereavement, may justify targeting the bereaved. Ms. Hand asked if studies show an increase in risk factor levels per se after bereavement. Members responded that there are studies that show risk factor increases after disasters or other stress but they were not aware of studies showing changes associated with spousal bereavement. Dr. Gillum offered to search for reports from the Framingham Heart Study.

The working group agreed upon the following action steps before the next meeting in June 2005:

1. Receive any comments and revisions on the current draft by December 1, 2004. These include the contributions mentioned above from Drs. Griffith, Quest, and Knazik, and Dr. Alonzo's suggestions regarding PTSD. Comments/revisions should be sent to Ms. Hand.

2. Drs. Zalenski and Gillum will prepare a new draft by January 30, 2005, based on these comments and circulate it to the working group and NHLBI partners. They will add tables and revisions to clearly identify research needs. Empathic death disclosure, family witnessed resuscitation, and CVD prevention should be highlighted as research and development projects. No clinical recommendations for general application seem warranted now. Recommendations should be limited to implementing current published clinical guidelines for risk factor management appropriate to the age, risk factors, and disease history of the survivor by the usual source of care.

3. This new draft will be distributed to all members of the Coordinating Committee for review and comment prior to the June 2005 meeting and for discussion.

4. A presentation based on the paper should be prepared by Drs. Zalenski and Quest for presentation at the next NHAAP Coordinating Committee meeting (and at the AHA Quality of Care and Outcomes Research in Cardiovascular Disease and Stroke meeting, if appropriate).

5. The Coordinating Committee will be asked to send the paper to all member organizations for review, comment, and approval for publication in a peer-reviewed journal after their comments and suggestions have been incorporated by August 30, 2005, at the latest.

6. Drs. Quest and Knasik should send death disclosure data and sample training materials to Ms. Hand, and Ms. Hand/Dr. Gillum will request materials from Coordinating Committee members, the Cardiac Arrest Survivor Group, the American Trauma Society, etc. Dr. Gillum will compile a listing of these materials for an appendix by January 30, 2005. In addition, Dr. Gillum will attempt to obtain the report of the United Kingdom Working Group on Bereavement Care in Ambulatory and Emergency Departments (cited in ref. 31a).

7. Based on the group's discussion (especially input from Drs. Griffith and Quest), Dr. Gillum suggested (i.e., postmeeting recommendation) identifying leading researchers/groups that might form the core of a survivor care research consortium to work with the NHLBI Behavioral Branch and NHAAP to consider future research needs for survivor care, and invite about six to participate in our next meeting (June 2005) by conference call (e.g., authors of articles like Dr. T.L. Smith of the University of Maryland, Baltimore Campus; Drs. J.A. Cohen of Drexel University College of Medicine, Pittsburgh; Drs. T.A. Schmidt or S.W. Tolle, of Oregon University; Dr. S.M. Robinson of Cambridge University; Dr. S. Kaltman, of Catholic University of America, Washington, DC; Dr. P.G. Kaufmann of NHLBI; Mr. H. Teeter of the American Trauma Society, Washington, DC; or others known to the group, who, with Dr. Zalenski's and Dr. Quest's groups, might form the initial research consortium) .

Dr. Zalenski thanked the participants and adjourned the meeting.

Prepared by Dr. Gillum and Ms. Hand
11/5/2004